

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER vorl.
Edition : 24.01.91
Replaces : -
Test oil : ISO-4113

Injection pump
Pump designation : PES4MM100/120RV18277
Governor
Governor design. : RQV300...1300MWV
19736K
Governor no. : B 420 080 120

Customer-spec. information
Customer : PERKINS

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 112

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.30...3.40
: (3.25...3.45)
Rack travel in mm : 10.50
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

AO1

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 11.4...11.6

100 s : (11.2...11.8)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.0...1.4

100 s : (0.6...1.8)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1420

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: MAX.

Del.quantity : 114.0...116.0

1000 : (112.0...118.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: ?

Testing:

1st rack travel in: 11.20

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1490...1520

4th rack travel in: 1700

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position, degrees: ?

Testing:

Speed rpm : 100

Minimum rack travel: ?

Speed rpm : 300
Rack travel in mm : 6.40...6.60

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : MAX.
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 150
Rack travel in m: BEGINN

START CUT-OUT

Speed 1/min : 230

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: MAX.
Speed rpm : 900
Del.quantity cm³/ : 107.5...110.5
1000 s: (-)
Spread cm³ : 5.00
1000 s: (-)

Aneroid pressure h: MAX.
Speed rpm : 550
Del.quantity cm³/ : 78.5...81.5
1000 s: (-)

Spread cm³ : 5.00
Aneroid pressure h: MAX.
Speed rpm : 450
Del.quantity cm³/ : 70.0...73.0
1000 s: (-)

Spread cm³ : 5.00
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm³/ : 60.0...62.0
1000 s: (-)

Spread cm³ : 3.50
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1340...1350

A02

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 10.0...14.0
1000 s: (-)
Spread cm³ : 3.50
1000 s: (-)

Remarks:

: C.D.C. 3913733

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD vorl.
Edition : 25.01.91
Replaces : -
Test oil : ISO-4113

Injection pump
Pump designation : PES6A85D410/3RS2761
EP type number : 0 410 886 895
Governor
Governor design. : RQV300...1250ABV
Governor design. : 20454

Customer-spec. information
Customer : KHD

Engine : BF6L913

1st version kW : 96.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

A03

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 7.0...7.1

100 s : (6.8...7.3)

Spread cm³ : 0.3

100 s : (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 7.7...7.9

Del.quantity cm³/ : 0.8...1.4

100 s : (0.6...1.6)

Spread cm³ : 0.2

100 s : (0.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.84...2.34

2nd speed rpm : 360
travel mm : 2.26...2.76

3rd speed rpm : 800
travel mm : 4.83...5.33

4th speed rpm : 1300
travel mm : 8.70...9.20

5th speed rpm : 1530
travel mm : 11.50...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1235

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 70.5...71.5

1000 : (68.5...73.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 51...59

Testing:
1st rack travel in: 9.70
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1362...1392

LOW IDLE 1
Control lever
position degrees: 19...27

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 345...465

TORQUE CONTROL
Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.70...10.80
2nd speed rpm : 790
Rack travel in m: 11.20...11.30
3rd speed rpm : 910
Rack travel in m: 11.00...11.20
4th speed rpm : 1105
Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 775
Del.quantity cm³/ : 67.0...69.0
1000 s: (64.5...71.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 110.0...120.0
1000 s: (107.0...123.0)
Rack travel in mm : 17.00...17.40

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 8,7 L 1
 Edition : 25.01.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 646 278

Injection pump
 Pump designation : PE6A90D410RS2124
 EP type number : 0 410 696 141
 Governor
 Governor design. : RQ375/1275AB812-1L
 Governor no. : 0 420 200 115

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 360

1st version kW : 141.0
 Rated speed : 2550

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

A05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 8.6...8.7

100 s: (8.4...8.9)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 375.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 1.2...1.8
 100 s: (1.0...2.0)

Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1275
 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 86.0...87.0
 1000 : (84.0...89.0)

Spread cm³ : 3.00
 1000 : (4.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 1275
 Rack travel in mm : 16.0

Testing:
 1st rack travel in: 9.20
 Speed rpm : 1315...1325
 2nd rack travel in: 4.00
 Speed rpm : 1385...1415

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6.5

Testing:

Speed rpm : 275

Minimum rack trave: 8.00

Speed rpm : 375

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 445...505

Speed rpm : 550

Maximum rack trave: 1.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm³/ : 80.0...83.0

1000 s: (78.0...85.0)

1000 s: (5.)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1315...1325

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,7 p7
 Edition : 01.02.91
 Replaces : 11.5.89
 Test oil : ISO-4113

Combination no. : 0 400 648 112

Injection pump
 Pump designation : PE8A95D410LS2608
 EP type number : 0 410 698 988
 Governor
 Governor design. : RQV300...1250AB990DL
 Governor no. : 0 420 214 228

Customer-spec. information
 Customer : KHD

Engine : F8L413F

1st version kW : 188.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 9.1...9.3

100 s: (8.9...9.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.3

Del.quantity cm³/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1290

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 91.5...93.5

1000 : (89.5...95.5)

Spread cm³ : 3.00

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 8.90

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1360...1390

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 6.20...6.30
Speed rpm : 950
Maximum rack trave: 1.00

CONSTANT REGULATION

Speed rpm : 320...440

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.90...10.00
2nd speed rpm : 1075
Rack travel in m: 9.90...10.20
3rd speed rpm : 925
Rack travel in m: 10.20...10.40
4th speed rpm : 500
Rack travel in m: 10.40...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm3/ : 91.0...94.0
1000 s: (89.0...96.0)
Speed rpm : 700
Del.quantity cm3/ : 91.5...94.5
1000 s: (89.5...96.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 13.90...14.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,7 p6
 Edition : 01.02.91
 Replaces : 11.5.89
 Test oil : ISO-4113
 Combination no. : 0 400 648 142
 Injection pump
 Pump designation : PE8A95D410LS2608
 EP type number : 0 410 698 988
 Governor
 Governor design. : RQV350...1250AB990-1
 L
 Governor no. : 0 420 212 182

Customer-spec. information
 Customer : KHD

Engine : F8L413F

1st version kW : 174.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1225

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.20...1.30

2nd speed rpm : 600
 travel mm : 3.80...4.00

3rd speed rpm : 900
 travel mm : 5.20...5.50

4th speed rpm : 1315
 travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1225

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1225

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 9.00

Speed rpm : 1265...1275

2nd rack travel in: 4.00

Speed rpm : 1300...1330

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 65...73

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 350

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

CONSTANT REGULATION

Speed rpm : 370...480

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1225

Rack travel in m: 10.00...10.10

2nd speed rpm : 500

Rack travel in m: 10.50...10.60

3rd speed rpm : 700

Rack travel in m: 10.40...10.60

4th speed rpm : 1050

Rack travel in m: 10.20...10.30

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/ : 90.5...93.5

1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

Speed rpm : 1265...1275

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.70...15.30

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAO 14,6 a
 Edition : 01.02.91
 Replaces : 7.2.89
 Test oil : ISO-4113

Combination no. : 0 400 648 146

Injection pump
 Pump designation : PE8A95D320LS2672
 EP type number : 0 410 698 985
 Governor
 Governor design. : RQ250/1150AB1191-1R
 Governor no. : 0 420 201 646

Customer-spec. information
 Customer : DAEWOO

Engine : D2848 M

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 10.9...11.1
 100 s: (10.7...11.3)

Spread cm³ : 0.3
 100 s: (0.4)

2nd speed rpm : 250.0

Rack travel in mm : 8.1...8.3

Del.quantity cm³/ : 0.9...1.5
 100 s: (0.6...1.7)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 600

Rack travel in mm : 13.20...13.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 109.0...111.0
 1000 : (107.0...113.0)

Spread cm³ : 3.50
 1000 : (4.50)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600
 Rack travel in mm : 13.5

Testing:
 1st rack travel in: 11.90
 Speed rpm : 1195...1210
 2nd rack travel in: 4.00
 Speed rpm : 1245...1275

LOW IDLE 1
 Setting point w/out bumper spring

Speed rpm : 250
Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack trave: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 385...425

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 600
Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 87.0...90.0
1000 s: (84.5...92.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...180.0
1000 s: (167.0...183.0)
Rack travel in mm : 19.50...21.00

Remarks:

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APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 k3
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 649 168
 Injection pump
 Pump designation : PE10A90D610/4LS2243
 EP type number : 0 410 699 103
 Governor
 Governor design. : RQV300...1325AB924DL
 Governor no. : 0 420 214 204

Customer-spec. information
 Customer : KHD

Engine : F10L413L

1st version kW : 225.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1325
 Rack travel in mm : 8.80...8.90
 Del.quantity cm³/ : 6.8...6.9
 100 s: (6.6...7.1)
 Spread cm³ : 0.3
 100 s: (0.5)

2nd speed rpm : 300.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 0.7...1.4
 100 s: (0.5...1.6)
 Spread cm³ : 0.5
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.40...1.60
 2nd speed rpm : 465
 travel mm : 2.30...2.70
 3rd speed rpm : 595
 travel mm : 3.00...3.50
 4th speed rpm : 1365
 travel mm : 8.40...8.60
 5th speed rpm : 1435
 travel mm : 9.00...9.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1375
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1325
 Del.quantity : 68.5...69.5
 1000 : (66.5...71.5)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 7.80
Speed rpm : 1365...1375
2nd rack travel in: 4.00
Speed rpm : 1415...1445

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 375...480

TORQUE CONTROL
Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1325
Rack travel in m: 8.80...8.90
2nd speed rpm : 500
Rack travel in m: 10.00...10.10
3rd speed rpm : 800
Rack travel in m: 10.00...10.10
4th speed rpm : 1000
Rack travel in m: 9.50...9.60

START CUT-OUT

Speed 1/min : 220 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1000
Del.quantity cm3/ : 67.0...70.0
1000 s: (65.0...72.0)
Speed rpm : 800
Del.quantity cm3/ : 71.5...74.5
1000 s: (69.5...76.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.80
Speed rpm : 1365...1375

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 d1
 Edition : 01.02.91
 Replaces : 6.83
 Test oil : ISO-4113

Combination no. : 0 400 649 201

Injection pump
 Pump designation : PE10A95D610/4LS2452
 EP type number : 0 410 699 998
 Governor
 Governor design. : RQV300...1250AB1026D

Governer no. : 0 420 214 235

Customer-spec. information
 Customer : KHD

Engine : F10L413F

1st version kW : 235.4
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1-10- 9- 4- 3- 6- 5-
 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.30...10.40

Del.quantity cm3/ : 9.1...9.3

100 s: (8.9...9.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1295

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 91.0...93.0

1000 : (89.0...95.0)

Spread cm3 : 3.00

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 112...120

Testing:

1st rack travel in: 9.30

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1365...1395

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 58...66

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Speed rpm : 850
Maximum rack trave: 1.00

CONSTANT REGULATION

Speed rpm : 330...420

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.30...10.40
2nd speed rpm : 1000
Rack travel in m: 10.40...10.60
3rd speed rpm : 700
Rack travel in m: 10.80...10.90
4th speed rpm : 400
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm³/ : 90.5...93.5
1000 s: (88.5...95.5)
Speed rpm : 700
Del.quantity cm³/ : 91.0...94.0
1000 s: (89.0...96.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...135.0
1000 s: (122.0...138.0)
Rack travel in mm : 14.30...15.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 8,7 k 1
 Edition : 18.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 187
 Injection pump
 Pump designation : PE6A90D410RS2124
 EP type number : 0 410 696 141
 Governor
 Governor design. : RSV350...1250A1C750L
 Governor no. : 0 420 232 488

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 360

1st version kW : 132.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1230

Rack travel in mm : 10.10...10.20

Del.quantity cm³/ : 8.4...8.5

100 s: (8.2...8.7)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...6.3

Del.quantity cm³/ : 1.2...1.4

100 s: (1.0...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1230

Del.quantity : 84.0...85.0

1000 : (82.0...87.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 9.10

Speed rpm : 1280...1290

2nd rack travel in: 4.00

Speed rpm : 1340...1370

4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1230
Rack travel in m: 10.10...10.20
2nd speed rpm : 500
Rack travel in m: 11.00...11.10
3rd speed rpm : 700
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 550
Del.quantity cm³/ : 83.0...85.0
1000 s: (80.5...87.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1280...1290

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 14.60...15.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...6.30

Del.quantity cm³/ : 12.0...14.0
1000 s: (10.0...16.0)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 j
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 844 095
 Injection pump
 Pump designation : PES4A95D410RS2809
 EP type number : 0 410 894 993
 Governor
 Governor design. : RQV300...1400AB1065-
 23L
 Governor no. : 0 420 212 227

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 65.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 5.8...6.0

100 s: (5.6...6.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.9...9.1

Del.quantity cm³/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 58.0...60.0

1000 : (56.0...62.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:
1st rack travel in: 8.90
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1545...1575
4th rack travel in: 1670
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 69...77

Testing:
Speed rpm : 100
Minimum rack travel: 10.50
Speed rpm : 300
Rack travel in mm : 8.90...9.10

CONSTANT REGULATION
Speed rpm : 500...650

TORQUE CONTROL
Dimension a mm : 1.40
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 400
Rack travel in m: 11.30...11.60
3rd speed rpm : 650
Rack travel in m: 10.90...11.10
4th speed rpm : 900
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 400
Del.quantity cm³/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.90
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.40...14.80

Remarks:

:
Set shutoff stop to contact at
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 j 1
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 844 096

Injection pump
 Pump designation : PES4A95D410RS2809
 EP type number : 0 410 894 993
 Governor
 Governor design. : RQV300...1400AB1065-23L
 Governor no. : 0 420 212 227

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 65.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 5.8...6.0
 100 s: (5.6...6.2)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 8.9...9.1
 Del.quantity cm³/ : 0.8...1.2
 100 s: (0.5...1.4)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30
 2nd speed rpm : 500
 travel mm : 2.30...2.80
 3rd speed rpm : 750
 travel mm : 4.10...4.30
 4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1450
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del.quantity : 58.0...60.0
 1000 : (56.0...62.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:
1st rack travel in: 8.90
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1545...1575
4th rack travel in: 1670
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 69...77

Testing:
Speed rpm : 100
Minimum rack travel: 10.50
Speed rpm : 300
Rack travel in mm : 8.90...9.10

CONSTANT REGULATION
Speed rpm : 500...650

TORQUE CONTROL
Dimension a mm : 1.40
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 400
Rack travel in m: 11.30...11.60
3rd speed rpm : 650
Rack travel in m: 10.90...11.10
4th speed rpm : 900
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 400
Del. quantity cm³/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.90
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.40...14.80

Remarks:

Set shutoff stop to contact at
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 c
 Edition : 25.01.91
 Replaces : 5.84
 Test oil : ISO-4113
 Combination no. : 0 400 846 495
 Injection pump
 Pump designation : PES6A95D410RS2653
 EP type number : 0 410 896 922
 Governor
 Governor design. : RQ200/1100AB1167L
 Governor no. : 0 420 200 082

Customer-spec. information
 Customer : RABA

Engine : D2156MT/MKT/MTN6

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.70...1.80
 : (1.65...1.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 200.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del. quantity : 126.5...128.5

1000 : (124.5...130.5)

Spread cm³ : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 19.9

Testing:

1st rack travel in: 11.60

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1190...1220

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 200
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 320...360
Speed rpm : 450
Maximum rack travel: 1.00

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.60...12.70
2nd speed rpm : 500
Rack travel in m: 14.20...14.30
3rd speed rpm : 765
Rack travel in m: 13.70...13.90
4th speed rpm : 920
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 236
Rack travel in m: 12.80...12.90
3rd pressure hPa : 120
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 135.0...138.0
1000 s: (133.0...140.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 82.5...84.5
1000 s: (80.5...86.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 156.5...166.5
1000 s: (153.5...169.5)
Rack travel in mm : 17.20...17.40

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 b 1
 Edition : 25.01.91
 Replaces : 28.11.90
 Test oil : ISO-4113

Combination no. : 0 400 846 543

Injection pump
 Pump designation : PES6A95D420LS2595
 EP type number : 0 410 896 930
 Governor
 Governor design. : RQ200/1100AB1210R
 Govenrer no. : 0 420 201 643

Customer-spec. information
 Customer : RABA

Engine : D2156MT6U

1st version kW : 188.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.05)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 200.0
 Rack travel in mm : 7.3...7.5
 Del.quantity cm³/ : 0.9...1.5
 100 s: (0.6...1.7)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 700
 Del.quantity : 126.5...128.5
 1000 : (124.5...130.5)

Spread cm³ : 3.00
 1000 : (6.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 19.9

Testing:
 1st rack travel in: 11.60
 Speed rpm : 1145...1160
 2nd rack travel in: 4.00
 Speed rpm : 1190...1220

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack trave: 7.60

Speed rpm : 200

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00

Speed rpm : 320...360

Speed rpm : 450

Maximum rack trave: 1.00

TORQUE CONTROL

Dimension a mm : 0.55

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.60...12.70

2nd speed rpm : 500

Rack travel in m: 14.20...14.30

3rd speed rpm : 820

Rack travel in m: 13.70...13.90

4th speed rpm : 995

Rack travel in m: 12.90...13.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.10...11.20

2nd pressure hPa : 340

Rack travel in m: 12.80...12.90

3rd pressure hPa : 250

Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700

Del.quantity cm3/ : 135.0...138.0

1000 s: (133.0...140.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 82.5...84.5

1000 s: (80.5...86.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 177.0...187.0

1000 s: (174.0...190.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 p 4
Edition : 01.02.91
Replaces : 28.9.90
Test oil : ISO-4113
Combination no. : 0 400 846 585
Injection pump
Pump designation : PES6A95D32ORS2693
EP type number : 0 410 896 914
Governor
Governor design. : RQ300/1300AB1253-1R
Governor no. : 0 420 201 650

Customer-spec. information
Customer : DAF

Engine : NS 133

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.7...6.9

Del.quantity cm3/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 800

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 540...580

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.50...10.60
2nd speed rpm : 800
Rack travel in m: 11.80...12.40
3rd speed rpm : 950
Rack travel in m: 11.20...11.80
4th speed rpm : 1050
Rack travel in m: 10.70...11.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 160
Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1290

Del.quantity cm3/ : 73.0...75.0
1000 s: (70.5...77.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 50.5...51.5
1000 s: (48.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 j 1
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 846 592

Injection pump
 Pump designation : PES6A95D410RS2797
 EP type number : 0 410 896 900
 Governor
 Governor design. : RQV300...1200AB1065-
 24L
 Governor no. : 0 420 212 228

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kw : 92.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 5.8...6.0
 100 s: (5.6...6.2)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 8.9...9.1
 Del.quantity cm³/ : 0.8...1.2
 100 s: (0.5...1.4)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1450
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 58.5...60.5
 1000 : (56.5...62.5)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Testing:
1st rack travel in: 8.90
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 69...77

Testing:
Speed rpm : 100
Minimum rack trave: 10.00
Speed rpm : 300
Rack travel in mm : 8.90...9.10

CONSTANT REGULATION
Speed rpm : 525...625

TORQUE CONTROL
Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.90...10.00
2nd speed rpm : 500
Rack travel in m: 11.10...11.20
3rd speed rpm : 690
Rack travel in m: 10.70...10.90
4th speed rpm : 840
Rack travel in m: 10.30...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 44.0...47.0
1000 s: (41.5...49.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.90
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.60...15.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 o 6
 Edition : 16.01.91
 Replaces : 21.9.90
 Test oil : ISO-4113

Combination no. : 0 400 864 081

Injection pump
 Pump designation : PES4A85D410/3RS2799
 EP type number : 0 410 884 944
 Governor
 Governor design. : RSV325...1250A2C2253
 L
 Governor no. : 0 420 232 547

Customer-spec. information
 Customer : KHD

Engine : BF4L913

1st version kW : 78.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 8.4...8.5

100 s : (8.2...8.7)

Spread cm³ : 0.3

100 s : (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.5...7.7

Del.quantity cm³/ : 1.2...1.8

100 s : (1.0...2.0)

Spread cm³ : 0.2

100 s : (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 84.0...85.0

1000 : (82.0...87.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 10.70

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1345...1375

4th rack travel in: 1480
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 350...410

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250
Rack travel in m: 11.70...11.80
2nd speed rpm : 500
Rack travel in m: 12.00...12.10
4th speed rpm : 850
Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 10.80...10.90
2nd pressure hPa : 300
Rack travel in m: 11.60...11.70
3rd pressure hPa : 230
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 80.5...81.5
1000 s: (78.0...84.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 58.0...60.0
1000 s: (56.0...62.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 17.60...18.00

Remarks:

APPLICATION

Wheel loader

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 48
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 864 083
 Injection pump
 Pump designation : PES4A95D410/3RS2789
 EP type number : 0 410 894 995
 Governor
 Governor design. : RSV325...1175A5C2163
 -6L
 Governor no. : 0 420 232 548

Customer-spec. information
 Customer : KHD

Engine : F4L913

1st version kW : 55.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 9.3...9.5

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del.quantity : 74.5...76.5

1000 : (72.5...78.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 97...105

Testing:

1st rack travel in: 10.90

Speed rpm : 1215...1225

2nd rack travel in: 4.00

Speed rpm : 1245...1275

3rd rack travel in: 4.00

Speed rpm : 1260...1290
4th rack travel in: 1430
Speed rpm : 0.30...1.40

Tractor (tractor engines)

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 8.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 9.30...9.50
Rack travel in mm : 2.00
Speed rpm : 395...455

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 11.90...12.00
2nd speed rpm : 500
Rack travel in m: 12.30...12.40
4th speed rpm : 950
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 58.5...61.5
1000 s: (56.0...64.0)
Speed rpm : 800
Del.quantity cm³/ : 69.0...72.0
1000 s: (66.5...74.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

Remarks:

: DX 4.31

APPLICATION

B06

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 o 8
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 864 087
 Injection pump
 Pump designation : PES4A85D410/3RS2799
 EP type number : 0 410 884 944
 Governor
 Governor design. : RSV325...1075A8C2253
 -1L
 Governor no. : 0 420 232 555

Customer-spec. information
 Customer : KHD

Engine : BF4L913

1st version kW : 65.0
 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1060

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 7.8...7.9

100 s: (7.6...8.1)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.5...7.7

Del. quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1060

Aneroid pressure h: 1000

Del. quantity : 78.0...79.0

1000 : (76.0...81.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 10.30

Speed rpm : 1100...1110

2nd rack travel in: 4.00

Speed rpm : 1130...1160

3rd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1310
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 14...21
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 395...455

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1060
Rack travel in m: 11.30...11.40
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
4th speed rpm : 870
Rack travel in m: 11.40...11.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 330
Rack travel in m: 11.50...11.60
3rd pressure hPa : 250
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 76.0...78.0
1000 s: (73.5...80.5)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 58.5...59.5
1000 s: (56.5...61.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

Remarks:

APPLICATION

Wheel loader

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 5,9 f 6
 Edition : 18.01.91
 Replaces : 14.12.90
 Test oil : ISO-4113

Combination no. : 0 400 866 102

Injection pump
 Pump designation : PES6A90D210RS2629
 EP type number : 0 410 896 075
 Governor
 Governor design. : RSV350...1300AOC2142
 L
 Governor no. : 0 420 232 375

Customer-spec. information

Customer : FORD/GB

Engine : DOVER 363

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 5.8...5.9

100 s : (5.6...6.1)

Spread cm³ : 0.3

100 s : (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.4...7.6

Del. quantity cm³/ : 0.7...1.3

100 s : (0.5...1.5)

Spread cm³ : 0.2

100 s : (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 58.5...59.5

1000 : (56.5...61.5)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version
 Control lever
 position degrees: 121...129

Testing:

1st rack travel in: 10.70

Speed rpm : 1370...1380

2nd rack travel in: 4.00

Speed rpm : 1490...1520

3rd rack travel in: 4.00

Speed rpm : 1515...1545

4th rack travel in: 1680

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 84...92

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 350

Rack travel in mm : 7.40...7.60

Rack travel in mm : 2.00

Speed rpm : 560...610

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 11.70...11.80

2nd speed rpm : 500

3rd speed rpm : 700

Rack travel in m: 11.90...12.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 76.0...90.0

1000 s: (73.0...93.0)

Rack travel in mm : 19.50...21.00

Remarks:

: ,

At start of delivery, locating pin must latch into slit in pointer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 3,3 a 2
 Edition : 25.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 873 040
 Injection pump
 Pump designation : PES3A95D32ORS2655
 EP type number : 0 410 893 997
 Governor
 Governor design. : RSV375...1175A2C2178
 -10R
 Governor no. : 0 420 233 281

Customer-spec. information
 Customer : VALMET

Engine : 320 DS

1st version kW : 55.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0
 Rack travel in mm : 4.2...4.4
 Del. quantity cm³/ : 0.8...1.5
 100 s: (0.5...1.7)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1175
 Del. quantity : 85.5...87.5
 1000 : (83.5...89.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 97...106

Testing:

1st rack travel in: 9.70
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1270...1300
3rd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1440
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 3.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 375
Rack travel in mm : 4.20...4.40
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 10.70...10.80
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
4th speed rpm : 990
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 74.5...77.5
1000 s: (72.0...80.0)
1000 s: (7.)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...200.0
1000 s: (187.0...203.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 4.20...4.40
Del.quantity cm3/ : 8.0...15.0
1000 s: (5.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 e 2
 Edition : 20.12.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 248
 Injection pump
 Pump designation : PES4A90D41ORS2728
 EP type number : 0 410 894 030
 Governor
 Governor design. : RSV350...750A0C2240-3L
 Governor no. : 0 420 232 559

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM364

1st version kW : 39.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 5.7...5.9

100 s: (5.5...6.1)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 1.0...1.4

100 s: (0.8...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 57.0...59.0

1000 : (55.0...61.0)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 76...84

Testing:

1st rack travel in: 11.00

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...793

4th rack travel in: 850

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.0

Testing:

Speed rpm : 100

Minimum rack travel: 19.50

Speed rpm : 350

Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00

Speed rpm : 375...405

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 16.50...16.90

Remarks:

:

Observe VDT-I-420/120

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 4,4 c
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 250
 Injection pump
 Pump designation : PES4A95D32ORS2807
 EP type number : 0 410 894 994
 Governor
 Governor design. : RSV375...1125A2C2178
 -7R
 Governor no. : 0 420 233 279

Customer-spec. information
 Customer : VALMET

Engine : 420 DS

1st version kW : 75.0
 Rated speed : 2250

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1125

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1125

Del.quantity : 86.5...88.5

1000 : (84.5...90.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 97...105

Testing:

1st rack travel in: 10.20
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1235...1265
3rd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1410
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 375
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 465...525

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1125
Rack travel in m: 11.20...11.30
2nd speed rpm : 500
Rack travel in m: 11.70...11.80
4th speed rpm : 965
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 86.5...89.5
1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...210.0
1000 s: (197.0...213.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 18.0...24.0
1000 s: (15.5...26.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 49
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 251
 Injection pump
 Pump designation : PES4A85D410RS2732-1
 EP type number : 0 410 884 943
 Governor
 Governor design. : RSV325...1175A8C2223
 -2L
 Governor no. : 0 420 232 484

Customer-spec. information
 Customer : KHD

Engine : F4L913

1st version kW : 56.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175
 Rack travel in mm : 9.90...10.00
 Del. quantity cm³/ : 6.8...6.9
 100 s: (6.6...7.1)

Spread cm³ : 0.3
 100 s: (0.4)

2nd speed rpm : 325.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 0.8...1.4
 100 s: (0.6...1.6)
 Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1175
 Del. quantity : 68.0...69.0
 1000 : (66.0...71.0)
 Spread cm³ : 3.00
 1000 : (4.50)

RATED SPEED

1st version
 Control lever
 position degrees: 102...110

Testing:
 1st rack travel in: 8.90
 Speed rpm : 1215...1225
 2nd rack travel in: 4.00
 Speed rpm : 1245...1275
 3rd rack travel in: 4.00

Speed rpm : 1250...1280
4th rack travel in: 1425
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 9.90...10.00
2nd speed rpm : 500
Rack travel in m: 10.50...10.60
4th speed rpm : 820
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 61.0...63.0
1000 s: (58.5...65.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 17.10...17.30

Remarks:

: RENAULT

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 6,6 b
 Edition : 25.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 384
 Injection pump
 Pump designation : PES6A95D32ORS2806
 EP type number : 0 410 896 898
 Governor
 Governor design. : RSV375...1125AOC2178
 -8R
 Governor no. : 0 420 233 280

Customer-spec. information
 Customer : VALMET

Engine : 620D

1st version kW : 88.0
 Rated speed : 2250

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1125

Rack travel in mm : 8.50...8.60

Del.quantity cm³/ : 6.7...6.9

100 s: (6.5...7.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.1...2.9

100 s: (1.9...3.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1125

Del.quantity : 67.5...69.5

1000 : (65.5...71.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 91...99

Testing:

1st rack travel in: 7.50
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1210...1240
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1380
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 375
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1125
Rack travel in m: 8.50...8.60
2nd speed rpm : 500
Rack travel in m: 10.10...10.20
4th speed rpm : 825
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 65.0...68.0
1000 s: (62.5...70.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.50
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...205.0
1000 s: (192.0...208.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 21.5...29.5
1000 s: (19.0...32.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 50
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 387
 Injection pump
 Pump designation : PES6A95D410RS2625
 EP type number : 0 410 896 926
 Governor
 Governor design. : RSV375...1200A5C2253
 -4L
 Governor no. : 0 420 232 560
 Customer-spec. information
 Customer : KHD
 Engine : BF6L913B
 1st version kw : 125.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 11.10...11.20
 Del.quantity cm³/ : 8.5...8.6
 100 s : (8.3...8.8)
 Spread cm³ : 0.3
 100 s : (0.6)
 2nd speed rpm : 375.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 1.1...1.7
 100 s : (0.8...1.9)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 800
 Del.quantity : 85.5...86.5
 1000 : (83.5...88.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 95...103

Testing:
 1st rack travel in: 10.10
 Speed rpm : 1240...1250
 2nd rack travel in: 4.00
 Speed rpm : 1260...1290

3rd rack travel in: 4.00
Speed rpm : 1280...1310
4th rack travel in: 1440
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 375
Rack travel in mm : 5.40...5.70
Rack travel in mm : 2.00
Speed rpm : 435...495

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.10...11.20
2nd speed rpm : 500
Rack travel in m: 12.10...12.20
4th speed rpm : 1030
Rack travel in m: 10.40...10.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500
1st pressure hPa : 100
Rack travel in m: 10.60...10.70
2nd pressure hPa : 350
Rack travel in m: 11.60...11.70
3rd pressure hPa : 280
Rack travel in m: 11.00...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm³/ : 89.0...91.0
1000 s: (86.5...93.5)
Aneroid pressure h: 100
Speed rpm : 500

Del.quantity cm³/ : 55.0...57.0
1000 s: (53.0...59.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 17.60...18.00

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 j 2
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 389
 Injection pump
 Pump designation : PES6A95D410RS2797
 EP type number : 0 410 896 900
 Governor
 Governor design. : RSV350...1200A1C1163
 -2L
 Governor no. : 0 420 232 562

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 75.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 4.8...5.0

100 s: (4.6...5.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 9.4...10.0

Del.quantity cm³/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 48.5...50.5

1000 : (46.5...52.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 108...116

Testing:

1st rack travel in: 8.00

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1263...1280

3rd rack travel in: 4.00

Speed rpm : 1315...1345
4th rack travel in: 1450
Speed rpm : 0.30...1.40
5th rack travel in: 1270...1280
Speed rpm : 8.00

LOW IDLE 1

Control lever
position degrees: -3
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 9.70

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 9.40...10.00
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.00...9.10
2nd speed rpm : 500
Rack travel in m: 10.00...10.20
3rd speed rpm : 875
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 35.0...38.0
1000 s: (32.5...40.5)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 15.40...15.80

Remarks:

:

Adjust shutoff device to 0.5...1.5 mm.

APPLICATION

Unimog

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 10,8 a1
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 276 051
 Injection pump
 Pump designation : PES6A100D410RS3039
 EP type number : 0 411 206 018
 Governor
 Governor design. : RSV475...950A1C2121L
 Governor no. : 0 420 232 384

Customer-spec. information
 Customer : RABA

Engine : D2156 MKTL6

1st version kW : 184.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.60...1.70
 : (1.55...1.75)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950
 Rack travel in mm : 13.60...13.70
 Del.quantity cm³/ : 15.2...15.4
 100 s: (15.0...15.6)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 475.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 1.1...1.5
 100 s: (0.9...1.8)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 950
 Aneroid pressure h: 750
 Del.quantity : 152.0...154.0
 1000 : (150.0...156.0)
 Spread cm³ : 3.00
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 95...103

Testing:
 1st rack travel in: 12.60
 Speed rpm : 990...1000
 2nd rack travel in: 4.00

Speed rpm : 1025...1055
3rd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1195
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 475
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 475
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 570...630
Speed rpm : 675
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 13.60...13.70
2nd speed rpm : 500
Rack travel in m: 15.70...15.80
3rd speed rpm : 840
Rack travel in m: 14.90...15.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 15.70...15.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 13.40...13.50
2nd pressure hPa : 550
Rack travel in m: 15.10...15.20
3rd pressure hPa : 420
Rack travel in m: 14.00...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 750
Del.quantity cm³/ : 180.0...184.0
1000 s: (178.0...186.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 0.0...149.0
1000 s: (0.0...151.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 990...1000

Remarks:

:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 12,0 h
 Edition : 01.02.91
 Replaces : 30.11.90
 Test oil : ISO-4113

Combination no. : 0 401 838 709

Injection pump
 Pump designation : PE8P110A120LS3271
 EP type number : 0 411 818 723
 Governor
 Governor design. : RQV250...1100PA951-2
 Governor no. : 0 421 813 908

Customer-spec. information
 Customer : SNF

Engine : WD815.66

1st version kW : 270.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 4- 8- 6- 3-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 17.4...17.6

100 s: (17.1...17.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 4.1...4.3

Del.quantity cm³/ : 1.7...2.3

100 s: (1.5...2.5)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.90...1.30

2nd speed rpm : 485
 travel mm : 3.20...3.80

3rd speed rpm : 640
 travel mm : 4.20...4.80

4th speed rpm : 1145
 travel mm : 8.40...8.60

5th speed rpm : 1220
 travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 174.0...176.0

1000 : (171.0...179.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version

Control lever
position degrees: 114...122

Testing:

1st rack travel in: 12.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: ?

Testing:

Speed rpm : 100
Minimum rack travel: 4.60
Speed rpm : 250
Rack travel in mm : 4.10...4.30

CONSTANT REGULATION

Speed rpm : 250...390

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.40...13.50
2nd speed rpm : 600
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 600
Rack travel in m: 12.50...12.60
3rd pressure hPa : 380
Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 186.0...190.0
1000 s: (183.0...193.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 117.0...119.0
1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...260.0
1000 s: (216.0...264.0)
Rack travel in mm : 20.00...21.00

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 12,0 i
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 838 710
 Injection pump
 Pump designation : PE8P110A120LS3271
 EP type number : 0 411 818 723
 Governor
 Governor design. : RQ300/1100PA958-2
 Governor no. : 0 421 801 570

Customer-spec. information
 Customer : SNF

Engine : WD815.66

1st version kW : 270.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 4- 8- 6- 3-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 17.4...17.6

100 s: (17.1...17.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 4.1...4.3

Del.quantity cm³/ : 1.7...2.3

100 s: (1.5...2.5)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 174.0...176.0

1000 : (171.0...179.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 12.40

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.2

Testing:

Speed rpm : 100
Minimum rack travel: 5.70
Speed rpm : 300
Rack travel in mm : 4.10...4.30
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.40...13.50
2nd speed rpm : 600
Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 600
Rack travel in m: 12.50...12.60
3rd pressure hPa : 380
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 186.0...190.0
1000 s: (183.0...193.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 117.0...119.0
1000 s: (114.0...122.0)

BREAKAWAY

CO2

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...260.0
1000 s: (216.0...264.0)
Rack travel in mm : 20.00...21.00

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,0 k 1
 Edition : 11.02.91
 Replaces : 14.9.90
 Test oil : ISO-4113
 Combination no. : 0 401 846 455
 Injection pump
 Pump designation : PE6P110A320RS367Y
 EP type number : 0 411 816 132
 Governor
 Governor design. : RQV250...1000PA394
 Governor no. : 0 421 813 241

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TMD 70 C

1st version kw : 154.5
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 004

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 8.5...8.7

100 s: (8.2...9.0)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 250.0
 Rack travel in mm : 4.9...5.1
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.20
 2nd speed rpm : 400
 travel mm : 2.70...2.90
 3rd speed rpm : 650
 travel mm : 4.70...4.90
 4th speed rpm : 1050
 travel mm : 8.40...8.50
 5th speed rpm : 1150
 travel mm : 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 700
 Del.quantity : 85.0...87.0
 1000 : (82.0...90.0)

Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 8.70
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 350...410

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...200.0
1000 s: (161.0...204.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =

C04

2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 e
 Edition : 16.01.91
 Replaces : 13.12.89
 Test oil : ISO-4113

Combination no. : 0 401 846 552

Injection pump
 Pump designation : PE6P100A820LS503
 EP type number : 0 411 806 197
 Governor
 Governor design. : RQ250/1000PA352-1
 Governor no. : 0 421 801 412

Customer-spec. information
 Customer : ENASA

Engine : 95 T1 AZ

1st version kW : 155.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.85...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 15.5...15.7

100 s: (15.3...15.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 16.00...17.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 900

Del.quantity : 155.0...157.0

1000 : (153.0...159.0)

Spread cm³ : 4.50

1000 : (7.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.6

Testing:

1st rack travel in: 12.70

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 13.70...13.80
2nd speed rpm : 700
Rack travel in m: 14.40...14.80
3rd speed rpm : 825
Rack travel in m: 13.90...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.90...13.30
2nd pressure hPa : 400
Rack travel in m: 14.10...14.20
3rd pressure hPa : 300
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 159.0...163.0
1000 s: (157.0...165.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 m
Edition : 14.12.90
Replaces : 17.9.90
Test oil : ISO-4113

Combination no. : 0 401 846 566

Injection pump
Pump designation : PE6P110A320RS526
EP type number : 0 411 816 178
Governor
Governor design. : RQ275/1000PA818-3
Governor no. : 0 421 801 534

Customer-spec. information
Customer : DAF

Engine : LT 160 G

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 13.00...14.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
& maximum rack tra: 13.0...14.0
Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.20...14.30

Del. quantity cm³/ : 15.6...15.8

100 s: (15.3...16.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.8

Del. quantity cm³/ : 2.2...2.7

100 s: (1.9...2.9)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del. quantity : 156.0...158.0

1000 : (153.5...160.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 15.8

Testing:

1st rack travel in: 12.40

Speed rpm : 1030...1045

2nd rack travel in: 4.00

Speed rpm : 1090...1120
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 7.00...7.20
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 13.40...13.60
2nd speed rpm : 600
Rack travel in m: 14.40...14.60
3rd speed rpm : 825
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 12.70...12.90
2nd pressure hPa : 290
Rack travel in m: 13.90...14.00
3rd pressure hPa : 260
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 980
Del.quantity cm³/ : 136.0...138.0
1000 s: (132.0...142.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 122.0...124.0
1000 s: (119.5...126.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1030...1045

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 280.0...320.0
1000 s: (276.0...324.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.40...7.80
Del.quantity cm³/ : 22.0...27.0
1000 s: (19.5...29.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 h1
 Edition : 15.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 827
 Injection pump
 Pump designation : PE6P120A320RS3178
 EP type number : 0 411 826 752
 Governor
 Governor design. : RQV250...950PA921-3
 Governor no. : 0 421 813 786

Customer-spec. information
 Customer : VOLVO

Engine : TD122F

1st version kW : 257.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.6...4.8

Del.quantity cm³/ : 1.7...2.2

100 s: (1.4...2.5)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 3.60...4.20

3rd speed rpm : 700
 travel mm : 6.40...6.60

4th speed rpm : 985
 travel mm : 8.20...8.40

5th speed rpm : 1060
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.00
Speed rpm : 980...990
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION
Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 120
Rack travel in m: 10.20...10.30
3rd pressure hPa : 620
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 980...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 17.5...22.5
1000 s: (14.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 x
 Edition : 18.01.91
 Replaces : 5.11.90
 Test oil : ISO-4113

Combination no. : 0 401 846 910

Injection pump
 Pump designation : PE6P110A320LS3851
 EP type number : 0 411 816 765
 Governor
 Governor design. : RQ300/1050PA187-26
 Governor no. : 0 421 801 489

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 160.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)

Rack travel in mm : 9.00...12.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...7.0

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 122.0...124.0

1000 : (119.5...126.5)

Spread cm³ : 8.50

1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 119.0...125.0
1000 s: (119.0...125.0)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 w
 Edition : 25.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 401 846 918

Injection pump
 Pump designation : PE6P110A320LS3851
 EP type number : 0 411 816 765
 Governor
 Governor design. : RQV300...1050PA884-6
 Governor no. : 0 421 813 832

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 160.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00

2nd speed rpm : 460
 travel mm : 2.70...3.20

3rd speed rpm : 738
 travel mm : 4.60...5.10

4th speed rpm : 1107
 travel mm : 7.90...8.40

5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 122.0...124.0
1000 : (119.5...126.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 10.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 83...91

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00

CONSTANT REGULATION

Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 119.0...125.0
1000 s: (116.0...128.0)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 e1
 Edition : 16.01.91
 Replaces : 14.9.90
 Test oil : ISO-4113

Combination no. : 0 401 846 922

Injection pump
 Pump designation : PE6P120A32ORS3176-3
 EP type number : 0 411 826 793
 Governor
 Governor design. : RQV250...1050PA808
 Governor no. : 0 421 813 553

Customer-spec. information

Customer : ENASA

Engine : 96 R1 CX

1st version kW : 220.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.4...6.7
 Del. quantity cm³/ : 1.1...1.7
 100 s: (0.8...2.0)
 Spread cm³ : 0.7
 100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 350
 travel mm : 1.90...2.50
 3rd speed rpm : 700
 travel mm : 4.50...5.10
 4th speed rpm : 1095
 travel mm : 8.00...8.20
 5th speed rpm : 1185
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 650
 Aneroid pressure h: 900

Del.quantity : 196.0...198.0
1000 : (193.0...201.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 80...88

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 250
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 250...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.40
2nd pressure hPa : 500
Rack travel in m: 12.30...12.40
3rd pressure hPa : 270
Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1030
Del.quantity cm3/ : 208.0...214.0
1000 s: (205.0...217.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...135.0
1000 s: (111.0...139.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.40...6.60

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 10,0 h1
 Edition : 18.01.91
 Replaces : 30.11.90
 Test oil : ISO-4113
 Combination no. : 0 401 846 940
 Injection pump
 Pump designation : PE6P110A72ORS3243
 EP type number : 0 411 816 770
 Governor
 Governor design. : RQV250...1100PA413-6
 Governor no. : 0 421 813 898

Customer-spec. information
 Customer : SNF

Engine : WD615.63

1st version kW : 204.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 16.4...16.6

100 s: (16.1...16.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 4.4...4.6

Del.quantity cm³/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.90...1.30

2nd speed rpm : 350
 travel mm : 1.70...2.30

3rd speed rpm : 700
 travel mm : 4.40...5.00

4th speed rpm : 1145
 travel mm : 8.30...8.50

5th speed rpm : 1250
 travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 164.0...166.0

1000 : (161.0...169.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 74...82

Testing:
Speed rpm : 100
Minimum rack travel: 6.00
Speed rpm : 250
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION

Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 500
Rack travel in m: 11.90...12.00
3rd pressure hPa : 325
Rack travel in m: 10.30...10.50

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700

Del. quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 120.0...122.0
1000 s: (117.0...125.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 232.0...272.0
1000 s: (228.0...276.0)
Rack travel in mm : 17.50...18.50

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 10,0 g1
 Edition : 18.01.91
 Replaces : 30.11.90
 Test oil : ISO-4113
 Combination no. : 0 401 846 941
 Injection pump
 Pump designation : PE6P110A72ORS3243
 EP type number : 0 411 816 770
 Governor
 Governor design. : RQ300/1100PA412-5
 Governor no. : 0 421 801 562

Customer-spec. information
 Customer : SNF

Engine : WD615.63

1st version kW : 204.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.70...12.80
 Del. quantity cm³/ : 16.4...16.6
 100 s: (16.1...16.9)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 3.9...4.1
 Del. quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 14.60...15.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del. quantity : 164.0...166.0
 1000 : (161.0...169.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 15.0

Testing:
 1st rack travel in: 11.70
 Speed rpm : 1145...1160
 2nd rack travel in: 4.00
 Speed rpm : 1240...1270

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.0

Testing:

Speed rpm : 100
Minimum rack travel: 5.50
Speed rpm : 300
Rack travel in mm : 3.90...4.10
Rack travel in mm : 2.00
Speed rpm : 350...390

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 500
Rack travel in m: 11.90...12.00
3rd pressure hPa : 325
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 120.0...122.0
1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 232.0...272.0
1000 s: (228.0...276.0)
Rack travel in mm : 17.50...18.50

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 w 1
 Edition : 18.01.91
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 401 846 943

 Injection pump
 Pump designation : PE6P110A320LS3851
 EP type number : 0 411 816 765
 Governor
 Governor design. : RQV300...1050PA884-9
 Governor no. : 0 421 813 912

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 11.8...12.0

100 s: (11.5...12.2)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 0.50...1.00

2nd speed rpm : 460
travel mm : 2.70...3.20

3rd speed rpm : 730
travel mm : 4.70...5.20

4th speed rpm : 1107
travel mm : 7.90...8.40

5th speed rpm : 1370
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 118.0...120.0
1000 : (115.5...122.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 10.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 83...91

Testing:

Speed rpm : 200
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 117.0...122.0
1000 s: (114.0...125.0)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 d 1
 Edition : 16.01.91
 Replaces : 18.9.97
 Test oil : ISO-4113
 Combination no. : 0 401 848 782
 Injection pump
 Pump designation : PE8P110A320LS3842
 EP type number : 0 411 818 714
 Governor
 Governor design. : RQV300...950PA829-1K
 Governor no. : 0 421 815 167

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442

1st version kw : 206.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 13.3...13.5

100 s: (13.0...13.7)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.8...9.0

Del.quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.60

2nd speed rpm : 500
 travel mm : 4.40...4.80

3rd speed rpm : 800
 travel mm : 5.60...7.00

4th speed rpm : 1000
 travel mm : 8.20...8.60

5th speed rpm : 1050
 travel mm : 9.40...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 975

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 133.0...135.0
1000 : (130.5...137.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:

1st rack travel in: 12.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1045...1075
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 100
Minimum rack travel: 10.50
Speed rpm : 300
Rack travel in mm : 8.80...9.00

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 13.50...13.60
2nd speed rpm : 600
Rack travel in m: 12.90...13.10
3rd speed rpm : 750
Rack travel in m: 13.20...13.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 118.0...121.0
1000 s: (115.0...124.0)
Spread cm³ : 6.00
1000 s: (9.00)
Speed rpm : 750
Del.quantity cm³/ : 124.0...128.0
1000 s: (121.0...131.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 r
 Edition : 25.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 401 848 808

Injection pump
 Pump designation : PE8P110A32DLS3846-1
 EP type number : 0 411 818 719
 Governor
 Governor design. : RQV300...1050PA884-5
 Governor no. : 0 421 813 831

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00

2nd speed rpm : 460
 travel mm : 2.70...3.20

3rd speed rpm : 738
 travel mm : 4.60...5.10

4th speed rpm : 1107
 travel mm : 7.90...8.40

5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 122.0...124.0
1000 : (119.5...126.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 10.20
Speed rpm : 1080...1090
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 85...93

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.30...6.90

CONSTANT REGULATION

Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 119.0...125.0
1000 s: (119.0...125.0)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 r 1
 Edition : 25.01.91
 Replaces : 5.11.90
 Test oil : ISO-4113

Combination no. : 0 401 848 810

Injection pump
 Pump designation : PE8P110A320LS3846-1
 EP type number : 0 411 818 719
 Governor
 Governor design. : RGV300...1050PA884-7
 Governor no. : 0 421 813 859

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

 Rack travel in mm : 10.90...11.00

 Del.quantity cm³/ : 11.1...11.3
 100 s: (10.8...11.5)

 Spread cm³ : 0.8
 100 s: (1.3)

2nd speed rpm : 300.0
 Rack travel in mm : 7.0...7.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.4)
 Spread cm³ : 0.6
 100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00
 2nd speed rpm : 460
 travel mm : 2.70...3.20
 3rd speed rpm : 738
 travel mm : 4.60...5.10
 4th speed rpm : 1107
 travel mm : 7.90...8.40
 5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 111.0...113.0
1000 : (108.5...115.5)
Spread cm3 : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 9.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 85...93

Testing:

Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00

CONSTANT REGULATION

Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 106.0...112.0
1000 s: (103.5...114.5)
Spread cm3 : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 c 9
 Edition : 01.02.91
 Replaces : 30.11.90
 Test oil : ISO-4113

Combination no. : 0 401 848 814

Injection pump
 Pump designation : PE8P110A320LS3842
 EP type number : 0 411 818 714
 Governor
 Governor design. : RQ300/1050PA187-31
 Governor no. : 0 421 801 553

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 10.4...10.6
 100 s: (10.1...10.8)

Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 8.2...8.5
 Del. quantity cm³/ : 1.5...2.1
 100 s: (1.2...2.3)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 650
 Rack travel in mm : 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Del. quantity : 104.0...106.0
 1000 : (101.5...108.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 14.0

Testing:
 1st rack travel in: 10.80

Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:

Speed rpm : 200
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 400...440

START CUT-OUT

Speed 1/min : 1 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm³/ : 118.0...122.0
1000 s: (115.0...125.0)
Spread cm³ : 6.00
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 d10
 Edition : 01.02.91
 Replaces : 30.11.90
 Test oil : ISO-4113

Combination no. : 0 401 848 815

Injection pump
 Pump designation : PE8P110A320LS3842
 EP type number : 0 411 818 714
 Governor
 Governor design. : RQV300...1050PA884-8
 Governor no. : 0 421 813 889

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kw : 195.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 10.4...10.6
 100 s: (10.1...10.8)

Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 8.2...8.5
 Del.quantity cm³/ : 1.5...2.1
 100 s: (1.2...2.3)
 Spread cm³ : 0.4
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.50

2nd speed rpm : 608
 travel mm : 4.80...5.30

3rd speed rpm : 820
 travel mm : 5.90...6.40

4th speed rpm : 1107
 travel mm : 8.30...8.80

5th speed rpm : 1280
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1130
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750

Del.quantity : 104.0...106.0
1000 : (101.5...108.5)
Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 10.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 12.50
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

Speed rpm : 300...450

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm3/ : 118.0...122.0
1000 s: (115.0...125.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 n 1
 Edition : 01.02.91
 Replaces : 30.11.90
 Test oil : ISO-4113

Combination no. : 0 401 849 751

Injection pump
 Pump designation : PE10P110A320LS3844
 EP type number : 0 411 819 710
 Governor
 Governor design. : RQ300/1050PA187-32
 Governor no. : 0 421 801 554

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 443

1st version kW : 243.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 130...150

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 10.2...10.4

100 s: (9.9...10.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.3

Del.quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 102.0...104.0

1000 : (99.5...106.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.7

Testing:

1st rack travel in: 10.60

Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm3/ : 116.0...120.0
1000 s: (113.0...123.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 10,0 b
 Edition : 15.11.90
 Replaces : 12.9.86
 Test oil : ISO-4113
 Combination no. : 0 401 856 142
 Injection pump
 Pump designation : PE6P110A721RS369
 EP type number : 0 411 816 121
 Governor
 Governor design. : RQ300/1300PA412DR
 Governor no. : 0 421 803 086

Customer-spec. information
 Customer : STEYR

Engine : WD615.60

1st version kW : 191.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.3...12.5

100 s: (12.0...12.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 9.2...9.4

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.6)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.40...16.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 123.0...125.0

1000 : (120.0...128.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.70

Speed rpm : 1345...1360

2nd rack travel in: 4.00

Speed rpm : 1405...1435

4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.40
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 390...430

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.60...13.80
3rd speed rpm : 900
Rack travel in m: 13.30...13.50
4th speed rpm : 1100
Rack travel in m: 12.90...13.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 12.40...12.60
2nd pressure hPa : 310
Rack travel in m: 13.10...13.20
3rd pressure hPa : 290
Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm3/ : 114.0...116.0
1000 s: (111.0...119.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 98.0...100.0
1000 s: (95.0...103.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Del.quantity cm3/ : 115.0...135.0
Rack travel in mm : 16.00...18.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f
 Edition : 16.01.91
 Replaces : 30.3.90
 Test oil : ISO-4113
 Combination no. : 0 401 876 332
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 9105.42.25.21

1st version kW : 113.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 113.0...115.0

1000 : (111.0...117.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 84...92

Testing:

1st rack travel in: 10.90

Speed rpm : 790...800

2nd rack travel in: 4.00

Speed rpm : 815...845

3rd rack travel in: 4.00
Speed rpm : 815...845
4th rack travel in: 1000
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 330...390

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.90...12.00
2nd speed rpm : 450
Rack travel in m: 11.90...12.10
3rd speed rpm : 300
Rack travel in m: 13.20...13.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:
:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g
 Edition : 16.01.91
 Replaces : 14.9.90
 Test oil : ISO-4113

Combination no. : 0 401 876 333

Injection pump
 Pump designation : PE6P120A320RS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RSV250...1100POA533
 Governor no. : 0 421 833 274

Customer-spec. information
 Customer : ENASA

Engine : 96 T1A0

1st version kW : 213.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 18.7...18.9
 100 s: (18.4...19.2)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 187.0...189.0
 1000 : (184.0...192.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 85...93

Testing:
 1st rack travel in: 9.30

Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1110...1140
3rd rack travel in: 4.00
Speed rpm : 1115...1145
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 60...68
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.30...10.40
2nd speed rpm : 450
Rack travel in m: 10.30...10.50
3rd speed rpm : 300
Rack travel in m: 11.50...12.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g1
 Edition : 16.01.91
 Replaces : 17.2.89
 Test oil : ISO-4113

Combination no. : 0 401 876 333A

Injection pump
 Pump designation : PE6P120A32DRS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RSV250...1100POA533
 Governor no. : 0 421 833 274

Cust. part no. : 181040-1

Customer-spec. information
 Customer : ENASA

Engine : 96 T1AD

1st version kW : 240.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 20.3...20.5

100 s: (20.0...20.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 203.0...205.0
 1000 : (200.0...208.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 91...99

Testing:

1st rack travel in: 9.90
Speed rpm : 1115...1120
2nd rack travel in: 4.00
Speed rpm : 1155...1185
3rd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.90...11.00
2nd speed rpm : 450
Rack travel in m: 10.90...11.00
3rd speed rpm : 250
Rack travel in m: 12.10...12.70

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1115...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g2
Edition : 16.01.91
Replaces : 17.2.89
Test oil : ISO-4113
Combination no. : 0 401 876 3338
Injection pump
Pump designation : PE6P120A320RS257
EP type number : 0 411 826 075
Governor
Governor design. : RSV250...1100POA533
Governor no. : 0 421 833 274

Cust. part no. : 121111-1

Customer-spec. information
Customer : ENASA

Engine : 96 T1A0

1st version kW : 228.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 10.80...10.90
Del.quantity cm3/ : 19.8...20.0
100 s: (19.5...20.3)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.7...5.9
Del.quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 198.0...200.0
1000 : (195.0...203.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Testing:

1st rack travel in: 9.80
Speed rpm : 1110...1115
2nd rack travel in: 4.00
Speed rpm : 1145...1175
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.80...10.90
2nd speed rpm : 450
Rack travel in m: 10.80...10.90
3rd speed rpm : 250
Rack travel in m: 12.00...12.60

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1110...1115

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g3
Edition : 16.01.91
Replaces : 17.2.89
Test oil : ISO-4113

Combination no. : 0 401 876 333C

Injection pump
Pump designation : PE6P120A32ORS257
EP type number : 0 411 826 075
Governor
Governor design. : RSV250...1100POA533
Governor no. : 0 421 833 274

Cust. part no. : 181114-1

Customer-spec. information
Customer : ENASA

Engine : 96 T1A0

1st version kW : 209.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 212.0...214.0

1000 : (209.0...217.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 86...94

Testing:

1st rack travel in: 10.20
Speed rpm : 905...910
2nd rack travel in: 4.00
Speed rpm : 955...985
3rd rack travel in: 4.00
Speed rpm : 965...995
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.20...11.30
2nd speed rpm : 450
Rack travel in m: 11.20...11.30
3rd speed rpm : 290
Rack travel in m: 12.40...13.00

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g4
Edition : 16.01.91
Replaces : 17.2.89
Test oil : ISO-4113
Combination no. : 0 401 876 333D
Injection pump
Pump designation : PE6P120A320RS257
EP type number : 0 411 826 075
Governor
Governor design. : RSV250...1100POA533
Governor no. : 0 421 833 274

Cust. part no. : 181116-1

Customer-spec. information
Customer : ENASA

Engine : 96 T1A0

1st version kW : 195.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 21.8...22.0

100 s: (21.5...22.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 218.0...220.0

1000 : (215.0...223.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 82...90

Testing:

1st rack travel in: 10.50
Speed rpm : 755...760
2nd rack travel in: 4.00
Speed rpm : 815...845
3rd rack travel in: 4.00
Speed rpm : 825...855
4th rack travel in: 1000
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.50...11.60
2nd speed rpm : 450
Rack travel in m: 11.50...11.60
3rd speed rpm : 300
Rack travel in m: 12.70...13.30

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 755...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g5
Edition : 16.01.91
Replaces : 17.2.89
Test oil : ISO-4113

Combination no. : 0 401 876 333E

Injection pump
Pump designation : PE6P120A320RS257
EP type number : 0 411 826 075
Governor
Governor design. : RSV250...1100POA533
Governor no. : 0 421 833 274

Cust. part no. : 181211-1

Customer-spec. information
Customer : ENASA

Engine : 96 T1A0

1st version kW : 220.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
(2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 20.0...20.2

100 s : (19.7...20.5)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.8

100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 200.0...202.0

1000 : (197.0...205.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Testing:
1st rack travel in: 9.90
Speed rpm : 1010...1015
2nd rack travel in: 4.00
Speed rpm : 1045...1075
3rd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.90...11.00
2nd speed rpm : 450
Rack travel in m: 10.90...11.00
3rd speed rpm : 250
Rack travel in m: 12.10...12.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1010...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:
:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g6
Edition : 16.01.91
Replaces : 17.2.89
Test oil : ISO-4113

Combination no. : 0 401 876 333F

Injection pump
Pump designation : PE6P120A32ORS257
EP type number : 0 411 826 075
Governor
Governor design. : RSV250...1100POA533
Governor no. : 0 421 833 274

Cust. part no. : 180727-1

Customer-spec. information
Customer : ENASA

Engine : 96 T1A0

1st version kW : 221.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 19.4...19.6

100 s : (19.1...19.9)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.8

100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 194.0...196.0

1000 : (191.0...199.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Testing:

1st rack travel in: 9.70
Speed rpm : 1010...1020
2nd rack travel in: 4.00
Speed rpm : 1045...1075
3rd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.70...10.80
2nd speed rpm : 450
Rack travel in m: 10.70...10.80
3rd speed rpm : 250
Rack travel in m: 11.90...12.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1010...1020

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 g1
Edition : 16.01.91
Replaces : 5.3.90
Test oil : ISO-4113
Combination no. : 0 401 876 339
Injection pump
Pump designation : PE6P110A820LS513-1
EP type number : 0 411 816 177
Governor
Governor design. : RSV250...1000POA532-1
Governor no. : 0 421 833 331

Customer-spec. information
Customer : ENASA

Engine : 95T1B0.MR4
1st version kw : 176.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder assembly : 0 681 343 009
Opening pressure, bar : 172...175
Test lines : 1 680 750 015
Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 13.20...13.30
Del.quantity cm3/ : 18.8...19.0
100 s: (18.5...19.3)
Spread cm3 : 0.4
100 s: (0.7)

2nd speed rpm : 250.0
Rack travel in mm : 6.5...6.7
Del.quantity cm3/ : 1.8...2.2
100 s: (1.5...2.4)
Spread cm3 : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 188.0...190.0
1000 : (185.0...193.0)
Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever position degrees: 86...94

Testing:
1st rack travel in: 12.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00

Speed rpm : 1085...1115
3rd rack travel in: 4.00
Speed rpm : 1085...1115
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 330...390

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.20...13.30
2nd speed rpm : 450
Rack travel in m: 13.20...13.30
3rd speed rpm : 300
Rack travel in m: 14.40...15.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:
:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,2 d
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 780
 Injection pump
 Pump designation : PE6P120A32ORS3206-1
 EP type number : 0 411 826 775
 Governor
 Governor design. : RSV250...900P4A550
 Governor no. : 0 421 833 354

Customer-spec. information
 Customer : PENTA

Engine : TID121LP

1st version kW : 295.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 29.8...30.0

100 s: (29.5...30.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del.quantity cm³/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm³ : 0.5

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 298.0...300.0

1000 : (295.0...303.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 103...111

Testing:

1st rack travel in: 11.20

Speed rpm : 945...955
2nd rack travel in: 4.00
Speed rpm : 985...1015
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.3
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...400

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 945...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 265.0...295.0
1000 s: (261.0...299.0)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,1 c 4
Edition : 16.01.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 781

Injection pump
Pump designation : PE6P110A32ORS3147
EP type number : 0 411 816 743
Governor
Governor design. : RSV650...750P4A421-2
Governor no. : 0 421 833 336

Customer-spec. information
Customer : PENTA

Engine : TD71AG

1st version kw : 127.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 14.0...14.2

100 s: (13.7...14.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 650.0

Rack travel in mm : 4.5...4.7

Del.quantity cm³/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm³ : 0.6

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 140.0...142.0

1000 : (137.0...145.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 86...94

Testing:

1st rack travel in: 9.70

Speed rpm : 742...747

2nd rack travel in: 4.00

Speed rpm : 771...784

4th rack travel in: 940
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 81...89
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 4.6
Speed rpm : 650
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 635...695

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...175.0
1000 s: (151.0...179.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 4.50...4.70
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 6.00
1000 s: (9.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,1 b1
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 782
 Injection pump
 Pump designation : PE6P120A320RS3189
 EP type number : 0 411 826 759
 Governor
 Governor design. : RSV650...750P4A421-3
 Governor no. : 0 421 833 337

Customer-spec. information
 Customer : PENTA

Engine : TD121GG

1st version kw : 199.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.7)

Spread cm3 : 0.5

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Testing:

1st rack travel in: 10.40

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 791...804
4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 85...93
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 630...690

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 480.0...520.0
Rack travel in mm : 20.00...21.00

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 s 2
 Edition : 25.01.91
 Replaces : 20.12.90
 Test oil : ISO-4113

Combination no. : 0 401 878 715

Injection pump
 Pump designation : PE8P110A320LS3842-1
 EP type number : 0 411 818 716
 Governor
 Governor design. : RSV350...1050POA824-13

Governer no. : 0 421 833 341

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kw : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 : 4- 1

Phasing : 0-45-90-135-180-225-
 Phasing : 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1030

 Rack travel in mm : 12.90...13.00

 Del.quantity cm³/ : 13.7...13.9
 100 s: (13.4...14.1)

 Spread cm³ : 0.4
 100 s: (0.8)

2nd speed rpm : 350.0
 Rack travel in mm : 8.1...8.7
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.4)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1030
 Del.quantity : 137.0...139.0
 1000 : (134.5...141.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 91...99

Testing:
1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 14.00
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 8.4
Speed rpm : 350
Rack travel in mm : 8.30...8.50
Rack travel in mm : 2.00
Speed rpm : 410...470

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del. quantity cm³/ : 124.0...128.0
1000 s: (121.0...131.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 a1
 Edition : 25.01.91
 Replaces : 31.7.90
 Test oil : ISO-4113

Combination no. : 0 402 035 022

Injection pump
 Pump designation : PES5P120A720/3LS512
 EP type number : 0 412 025 021
 Governor
 Governor design. : RQ325/1000PA813-14
 Governor no. : 0 421 801 530

Customer-spec. information
 Customer : MAN

Engine : D2865LF02

1st version kW : 199.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 21.7...21.9

100 s: (21.4...22.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.2...4.6

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 217.0...219.0

1000 : (214.0...222.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.90

Speed rpm : 1045...1060
2nd rack travel in: 4.00
Speed rpm : 1100...1130
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.4

Testing:

Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 325
Rack travel in mm : 4.30...4.50
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 11.30...11.50
3rd speed rpm : 850
Rack travel in m: 11.10...11.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.50
2nd pressure hPa : 100
Rack travel in m: 8.70...8.80
3rd pressure hPa : 350
Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1000

Del.quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 207.0...213.0
1000 s: (204.0...216.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.20...4.60
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7043
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 a3
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 035 023
 Injection pump
 Pump designation : PES5P120A720/3LS512
 EP type number : 0 412 025 021
 Governor
 Governor design. : RQ325/950PA813-15
 Governor no. : 0 421 801 532

Customer-spec. information
 Customer : MAN

Engine : D2865LFO/LU/01

1st version kW : 198.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 21.9...22.1

100 s: (21.6...22.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 219.0...221.0

1000 : (216.0...224.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.60

Speed rpm : 995...1010
2nd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 325
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 11.40...11.60
2nd speed rpm : 750
Rack travel in m: 11.80...12.00
3rd speed rpm : 850
Rack travel in m: 11.50...11.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.40...8.60
2nd pressure hPa : 110
Rack travel in m: 8.80...8.90
3rd pressure hPa : 450
Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 950

Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 210.0...216.0
1000 s: (207.0...219.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 128.0...130.0
1000 s: (125.0...133.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7044
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 b3
 Edition : 25.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 035 024
 Injection pump
 Pump designation : PES5P120A720/3LS512
 EP type number : 0 412 025 021
 Governor
 Governor design. : RQV325...1000PA876-5
 Governor no. : 0 421 813 865

Customer-spec. information
 Customer : MAN

Engine : D2865LF02

1st version kW : 199.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 21.7...21.9

100 s: (21.4...22.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.2...4.6

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 9.70...9.90

2nd speed rpm : 325

travel mm : 1.30...1.70

3rd speed rpm : 500

travel mm : 3.10...3.70

4th speed rpm : 800

travel mm : 6.60...7.00

5th speed rpm : 1250

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 217.0...219.0
1000 : (214.0...222.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 296...304

Testing:
1st rack travel in: 9.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 254...262

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 325
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION
Speed rpm : 280...400

TORQUE CONTROL
Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 10.70...10.80
2nd speed rpm : 1000
Rack travel in m: 11.30...11.50
3rd speed rpm : 900
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.50
2nd pressure hPa : 100
Rack travel in m: 8.70...8.80
3rd pressure hPa : 350

Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm³/ : 213.0...217.0
1000 s: (210.0...220.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm³/ : 207.0...213.0
1000 s: (204.0...216.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.20...4.60
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : MAN-NR. 3-7045

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a13
 Edition : 01.02.91
 Replaces : 15.12.89
 Test oil : ISO-4113
 Combination no. : 0 402 036 044
 Injection pump
 Pump designation : PES6P120A720/3LS470-
 2
 EP type number : 0 412 026 050
 Governor
 Governor design. : RQ300/1100PA658-19
 Governor no. : 0 421 801 323

Customer-spec. information
 Customer : MAN

Engine : D2866LFZ

1st version kW : 243.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 20.7...20.9

100 s: (20.4...21.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.6...4.8

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 207.0...209.0

1000 : (204.0...212.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 300
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.80
2nd speed rpm : 750
Rack travel in m: 11.90...12.20
3rd speed rpm : 875
Rack travel in m: 11.80...12.00
4th speed rpm : 950
Rack travel in m: 11.20...11.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40
3rd pressure hPa : 280
Rack travel in m: 10.50...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 203.0...207.0
1000 s: (200.0...210.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 208.0...214.0
1000 s: (205.0...217.0)
Aneroid pressure h: 280
Speed rpm : 500
Del.quantity cm3/ : 184.0...196.0
1000 s: (181.0...199.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7756

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 r1
 Edition : 25.01.91
 Replaces : 5.11.90
 Test oil : ISO-4113

Combination no. : 0 402 036 735X

Injection pump
 Pump designation : PES6P120A720/3LS3250
 -1

EP type number : 0 412 026 742
 Governor
 Governor design. : RQ300/1000PA813-13
 Governor no. : 0 421 801 529

Cust. part no. : 3-7050X

Customer-spec. information
 Customer : MAN

Engine : D2866LX

1st version kw : 273.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 14.50...15.50
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.90...6.10
 & maximum rack tra: 15.0...16.0
 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 24.2...24.4

100 s: (23.9...24.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 242.0...244.0

1000 : (239.0...247.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650
Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.00
Speed rpm : 1045...1060
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 15.00...15.10
2nd speed rpm : 700
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.70...11.90
2nd pressure hPa : 110
Rack travel in m: 12.00...12.10
3rd pressure hPa : 470
Rack travel in m: 13.70...14.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm³/ : 243.0...247.0
1000 s: (240.0...250.0)
Speed rpm : 700
Del.quantity cm³/ : 89.0...99.0
1000 s: (86.0...102.0)
Spread cm³ : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1045...1060

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 u1
 Edition : 25.01.91
 Replaces : 7.1.91
 Test oil : ISO-4113
 Combination no. : 0 402 036 740
 Injection pump
 Pump designation : PES6P120A720/3LS3255
 EP type number : 0 412 026 739
 Governor
 Governor design. : RQ300/1000PA813-13
 Governor no. : 0 421 801 529

Customer-spec. information
 Customer : MAN

Engine : D2866LF03
 1st version kW : 273.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant. per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 14.50...15.50
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.90...6.10
 & maximum rack tra: 15.0...16.0
 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 15.00...15.10
 Del.quantity cm3/ : 24.2...24.4
 100 s: (23.9...24.7)
 Spread cm3 : 0.5
 100 s: (0.9)
 2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.3
 Del.quantity cm3/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm3 : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 550
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1200
 Del.quantity : 242.0...244.0
 1000 : (239.0...247.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.80
Speed rpm : 1045...1060
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 200
Minimum rack trave: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.80...14.90
2nd speed rpm : 700
Rack travel in m: 15.30...15.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 11.70...11.90
2nd pressure hPa : 110
Rack travel in m: 12.00...12.10
3rd pressure hPa : 470
Rack travel in m: 13.70...14.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm3/ : 236.0...242.0
1000 s: (233.0...245.0)
Speed rpm : 700
Del.quantity cm3/ : 89.0...99.0
1000 s: (86.0...102.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1045...1060

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.30
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 0-7050

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 L 2
 Edition : 18.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 045 700
 Injection pump
 Pump designation : PES5P110A720LS3218
 EP type number : 0 412 015 700
 Governor
 Governor design. : RQ300/1100PA327-10
 Governor no. : 0 421 801 457

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449

1st version kW : 147.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 14.4...14.6

100 s: (14.1...14.8)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 144.0...146.0

1000 : (141.5...148.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:

Speed rpm : 200
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.20
Rack travel in mm : 2.00
Speed rpm : 360...400

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 121.0...125.0
1000 s: (118.0...128.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

}

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 L 3
 Edition : 25.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 045 701
 Injection pump
 Pump designation : PES5P110A720LS3218
 EP type number : 0 412 015 700
 Governor
 Governor design. : RQ300/1100PA327-11
 Governor no. : 0 421 801 458

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449

1st version kW : 140.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 10.90...11.00
 Del. quantity cm³/ : 13.5...13.7
 100 s: (13.2...13.9)
 Spread cm³ : 0.4
 100 s: (0.8)

2nd speed rpm : 300.0
 Rack travel in mm : 7.0...7.4
 Del. quantity cm³/ : 1.2...1.8
 100 s: (0.9...2.0)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 135.0...137.0
 1000 : (132.5...139.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 13.5

Testing:
 1st rack travel in: 9.90
 Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.2

Testing:

Speed rpm : 200
Minimum rack trave: 9.40
Speed rpm : 300
Rack travel in mm : 7.00...7.40
Rack travel in mm : 2.00
Speed rpm : 360...400

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 109.0...113.0
1000 s: (106.0...116.0)
Spread cm3 : 5.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 L 1
 Edition : 16.01.91
 Replaces : 4.11.88
 Test oil : ISO-4113

Combination no. : 0 402 045 701

Injection pump
 Pump designation : PES5P110A820LS3218
 EP type number : 0 412 015 700
 Governor
 Governor design. : RQ300/1100PA327-11
 Governor no. : 0 421 801 458

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449

1st version kW : 140.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 13.5...13.7

100 s: (13.2...13.9)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 135.0...137.0

1000 : (132.5...139.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.90

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.2

Testing:

Speed rpm : 200
Minimum rack travel: 9.40
Speed rpm : 300
Rack travel in mm : 7.00...7.40
Rack travel in mm : 2.00
Speed rpm : 360...400

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 109.0...113.0
1000 s: (106.0...116.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 u 2
Edition : 18.01.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 045 702
Injection pump
Pump designation : PES5P110A720LS3218
EP type number : 0 412 015 700
Governor
Governor design. : RQV300...1100PA916-2
Governor no. : 0 421 813 750

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM449

1st version kW : 140.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
: (4.25...4.45)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 13.5...13.7

100 s: (13.2...13.9)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.2

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.40

2nd speed rpm : 450

travel mm : 3.40...3.80

3rd speed rpm : 1150

travel mm : 7.90...8.30

4th speed rpm : 1225

travel mm : 9.10...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 135.0...137.0

1000 : (132.5...139.5)

Spread cm³ : 4.00
1000 : (8.00)

Remarks: :

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 9.50
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1220
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 85...93

Testing:
Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.20

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del. quantity cm³/ : 110.0...114.0
1000 s: (107.0...117.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 u 3
 Edition : 18.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 045 703
 Injection pump
 Pump designation : PES5P110A720LS3218
 EP type number : 0 412 015 700
 Governor
 Governor design. : RQV300...1100PA916-3
 Governor no. : 0 421 813 751

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449

1st version kW : 147.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00x1.50x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 14.4...14.6

100 s: (14.1...14.8)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.40

2nd speed rpm : 450

travel mm : 3.40...3.80

3rd speed rpm : 1150

travel mm : 7.90...8.30

4th speed rpm : 1225

travel mm : 9.10...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 144.0...146.0

1000 : (141.5...148.5)

Spread cm³ : 4.00
1000 : (8.00)

Remarks:

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 85...93

Testing:
Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.20

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 121.0...125.0
1000 s: (118.0...128.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 g
 Edition : 15.11.90
 Replaces : 2.10.90
 Test oil : ISO-4113

Combination no. : 0 402 076 733

Injection pump
 Pump designation : PES6P110A72ORS3224
 EP type number : 0 412 016 726
 Governor
 Governor design. : RSV475...1050P2A534-5
 Govenner no. : 0 421 833 313

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AT 001

1st version kW : 170.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.35...3.45
 : (3.30...3.50)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 15.8...16.0
 100 s: (15.6...16.2)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 475.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 1.0...1.4
 100 s: (0.8...1.7)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 600
 Del.quantity : 158.0...160.0
 1000 : (156.0...162.0)

Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 33...41

Testing:
1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1130...1140
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 11...19
Setting point w/out bumper spring
Speed rpm : 475
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 475
Rack travel in mm : 6.00...6.20

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.20...13.30
2nd speed rpm : 600
Rack travel in m: 13.90...14.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 600
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.80
2nd pressure hPa : 300
Rack travel in m: 13.40...13.50
3rd pressure hPa : 160
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 600
Speed rpm : 600
Del.quantity cm³/ : 177.0...181.0
1000 s: (175.0...183.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 131.0...135.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 475
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 10.5...14.5
1000 s: (8.0...17.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : JOHN DEERE # RE39856

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 14,0 h5
 Edition : 23.01.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 860

Injection pump
 Pump designation : PE8P120A920/4LS7125
 EP type number : 0 412 628 833
 Governor
 Governor design. : RQV200...900PA795-11

Customer-spec. information
 Customer : SCANIA

Engine : DS 14

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 7- 3- 4- 5-
 6- 8

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 21.4...21.6

100 s : (21.1...21.9)

Spread cm³ : 0.6

100 s : (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.5...5.1

Del.quantity cm³/ : 1.5...1.9

100 s : (-)

Spread cm³ : 0.3

100 s : (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.40...1.80

2nd speed rpm : 350
 travel mm : 1.90...2.50

3rd speed rpm : 650
 travel mm : 4.80...5.20

4th speed rpm : 945
 travel mm : 7.80...8.00

5th speed rpm : 1040
 travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:

1st rack travel in: 12.50
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1025...1055
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack travel: 11.00
Speed rpm : 300
Rack travel in mm : 4.50...5.10
Rack travel in mm : 2.00
Speed rpm : 320...380

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.30...11.40
2nd pressure hPa : 365
Rack travel in m: 12.80...12.90
3rd pressure hPa : 215
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 900
Del.quantity cm³/ : 204.0...212.0
1000 s: (202.0...214.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 158.0...162.0
1000 s: (156.0...164.0)

BREAKAWAY

F04

1st version
1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.50...5.10
Del.quantity cm³/ : 15.0...19.0
1000 s: (-)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 u 1
 Edition : 25.01.91
 Replaces : 20.12.90
 Test oil : ISO-4113

Combination no. : 0 402 648 901

Injection pump
 Pump designation : PE8P120A320LS7840
 EP type number : 0 412 628 850
 Governor
 Governor design. : RQV300...1050PA797-21
 Governor no. : 0 421 813 894

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.50...13.70

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.4

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.10...1.60

2nd speed rpm : 470
 travel mm : 3.00...3.50

3rd speed rpm : 830
 travel mm : 5.90...6.40

4th speed rpm : 1110
 travel mm : 8.20...8.70

5th speed rpm : 1183
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 208.0...210.0
1000 : (205.0...213.0)
Spread cm3 : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 200
Minimum rack travel: 7.90
Speed rpm : 300
Rack travel in mm : 6.10...6.70

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

2nd speed rpm : 1050
Rack travel in m: 12.90...13.10
3rd speed rpm : 800
Rack travel in m: 14.10...14.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.50...13.70

Measurement

Speed 1/min : 600

1st pressure hPa : 440
Rack travel in m: 11.30...11.50
2nd pressure hPa : 550
Rack travel in m: 12.30...12.50

3rd pressure hPa : 1050
Rack travel in m: 13.60...13.70 *
4th pressure hPa : 1120
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm3/ : 194.0...197.0
1000 s: (191.0...200.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 800
Del.quantity cm3/ : 236.0...240.0
1000 s: (233.0...243.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 123.0...125.0
1000 s: (120.0...128.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 v
 Edition : 20.12.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 902

Injection pump
 Pump designation : PE8P120A320LS7839
 EP type number : 0 412 628 849
 Governor
 Governor design. : RQ300/1050PA972-5
 Governor no. : 0 421 801 564

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.10...15.30

Del. quantity cm³/ : 25.2...25.4
 100 s: (24.9...25.7)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.2...6.8
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1050
 Del. quantity : 252.0...254.0
 1000 : (249.0...257.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.00
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

2nd speed rpm : 1050
Rack travel in m: 16.00...16.20
3rd speed rpm : 800
Rack travel in m: 16.80...17.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 600

1st pressure hPa : 290
Rack travel in m: 9.70...9.90
2nd pressure hPa : 780
Rack travel in m: 14.20...14.40
3rd pressure hPa : 1200
Rack travel in m: 15.20...15.40 *
4th pressure hPa : 1380
Rack travel in m: 16.10...16.30
5th pressure hPa : -
Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 1050

Del.quantity cm³/ : 274.0...277.0
1000 s: (271.0...280.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm³/ : 295.0...299.0
1000 s: (292.0...302.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 15.00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Adjust full-load delivery by turning temperature-dependent excess-fuel stop for starting (TAS).

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a24
 Edition : 30.11.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 903

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350...1050PA866-8
 Governor no. : 0 421 813 905

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 : 4- 1

Phasing : 0-45-90-135-180-225-
 : 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.90...14.10

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...6.1

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.30...1.80

2nd speed rpm : 570
 travel mm : 3.30...3.80

3rd speed rpm : 900
 travel mm : 5.40...5.90

4th speed rpm : 1107
 travel mm : 7.80...8.30

5th speed rpm : 1204
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 500
Aneroid pressure h: 650
Del.quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 250
Minimum rack trave: 8.20
Speed rpm : 350
Rack travel in mm : 5.60...6.10

CONSTANT REGULATION
Speed rpm : 350...550

TORQUE CONTROL
2nd speed rpm : 1050
Rack travel in m: 12.90...13.10
3rd speed rpm : 700
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.20...12.40
2nd pressure hPa : 375
Rack travel in m: 13.30...13.50
3rd pressure hPa : 900

F10

Rack travel in m: 14.00...14.10 *
4th pressure hPa : -
Rack travel in m: 11.70...12.00

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ : 180.0...183.0
1000 s: (177.0...186.0)
Spread cm³ : 8.00
1000 s: (12.)
Aneroid pressure h: 1100
Speed rpm : 700
Del.quantity cm³/ : 213.0...217.0
1000 s: (210.0...220.0)
Speed rpm : 500
Del.quantity cm³/ : 147.0...149.0
1000 s: (144.0...152.0)
Spread cm³ : 8.00
1000 s: (12.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a25
 Edition : 18.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 904
 Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350...1050PA866-9
 Governor no. : 0 421 813 906

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.80...14.00

Del. quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.30...1.80

2nd speed rpm : 570
 travel mm : 3.30...3.80

3rd speed rpm : 900
 travel mm : 5.40...5.90

4th speed rpm : 1107
 travel mm : 7.80...8.30

5th speed rpm : 1204
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 500
Aneroid pressure h: 700
Del.quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 95...103

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 45...53

Testing:

Speed rpm : 100
Minimum rack trave: 7.40
Speed rpm : 350
Rack travel in mm : 5.50...6.10

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 1.50
2nd speed rpm : 1050
Rack travel in m: 12.80...13.00
3rd speed rpm : 750
Rack travel in m: 14.30...14.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.70...14.00

Measurement

Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.10...12.30
2nd pressure hPa : 500
Rack travel in m: 13.00...13.20

F12

3rd pressure hPa : 925
Rack travel in m: 13.90...14.00
4th pressure hPa : -
Rack travel in m: 11.60...11.90

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ : 181.0...184.0
1000 s: (178.0...187.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 750
Del.quantity cm³/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a26
 Edition : 25.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 905
 Injection pump
 Pump designation : PE8P120A320LS7801-4
 EP type number : 0 412 628 839
 Governor
 Governor design. : RGV350...1050PA866-10
 Governor no. : 0 421 813 907

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.80...14.00

Del. quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.30...1.80

2nd speed rpm : 570
 travel mm : 3.30...3.80

3rd speed rpm : 900
 travel mm : 5.40...5.90

4th speed rpm : 1107
 travel mm : 7.80...8.30

5th speed rpm : 1204
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500
Aneroid pressure h: 700
Del.quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 95...103

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control Lever
position degrees: 45...53

Testing:

Speed rpm : 100
Minimum rack trave: 7.40
Speed rpm : 350
Rack travel in mm : 5.50...6.10

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 1.50
2nd speed rpm : 1050
Rack travel in m: 12.80...13.00
3rd speed rpm : 750
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.70...14.00

Measurement

Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.10...12.30
2nd pressure hPa : 500

Rack travel in m: 13.00...13.20
3rd pressure hPa : 925
Rack travel in m: 13.90...14.00
4th pressure hPa : -
Rack travel in m: 11.60...11.90

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm3/ : 181.0...184.0
1000 s: (178.0...187.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 750
Del.quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 402 648 906

 Injection pump
 Pump designation : PE8P120A320LS7838
 EP type number : 0 412 628 848
 Governor
 Governor design. : RQ300/1050PA972-6
 Governor no. : 0 421 801 569

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 : 4- 1

Phasing : 0-45-90-135-180-225-
 : 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1020

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 221.0...223.0

1000 : (218.0...226.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 1020

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.40
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.40...14.60
3rd speed rpm : 800
Rack travel in m: 14.80...15.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 9.90...10.10
2nd pressure hPa : 650
Rack travel in m: 12.50...12.70
3rd pressure hPa : 1100
Rack travel in m: 14.20...14.40 *
4th pressure hPa : -
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 950

Del.quantity cm3/ : 227.0...230.0
1000 s: (224.0...233.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 237.0...240.0
1000 s: (234.0...243.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 137.0...139.0
1000 s: (134.0...142.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Adjust full-load delivery by turning temperature-dependent excess-fuel stop for starting (TAS).

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 v 1
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 907

Injection pump
 Pump designation : PE8P120A32OLS7839
 EP type number : 0 412 628 849
 Governor
 Governor design. : RQV300...950PA797-22
 Governor no. : 0 421 813 909

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.10...15.30

Del.quantity cm³/ : 25.2...25.4
 100 s: (24.9...25.7)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.2...6.8
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.50
 2nd speed rpm : 617
 travel mm : 5.00...5.50
 3rd speed rpm : 780
 travel mm : 6.10...6.60
 4th speed rpm : 1010
 travel mm : 8.30...8.80
 5th speed rpm : 1092
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1020
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1000
Del.quantity : 252.0...254.0
1000 : (249.0...257.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 15.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:
Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 290
Rack travel mm : 9.70...9.90

Measurement

Speed 1/min : 600

1st pressure hPa : 760
Rack travel in m: 14.30...14.50
2nd pressure hPa : 1200
Rack travel in m: 15.30...15.50
3rd pressure hPa : 1500
Rack travel in m: 16.60...16.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1800
Speed rpm : 950
Del.quantity cm³/ : 290.0...293.0
1000 s: (287.0...296.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm³/ : 295.0...299.0
1000 s: (292.0...302.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 15.50
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w 1
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 908
 Injection pump
 Pump designation : PE8P120A320LS7838
 EP type number : 0 412 628 848
 Governor
 Governor design. : RQV300...950PA797-23
 Governor no. : 0 421 813 910

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 : 4- 1

Phasing : 0-45-90-135-180-225-
 : 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del. quantity cm³/ : 22.2...22.4

100 s: (21.9...22.7)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 617

travel mm : 5.00...5.50

3rd speed rpm : 780

travel mm : 6.10...6.60

4th speed rpm : 1009

travel mm : 8.30...8.80

5th speed rpm : 1092

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 222.0...224.0
1000 : (219.0...227.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 13.40
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:
Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.60...10.80
2nd pressure hPa : 600
Rack travel in m: 14.00...14.20
3rd pressure hPa : 1100
Rack travel in m: 14.90...15.10
4th pressure hPa : 1200
Rack travel in m: 15.50...15.70

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 950
Del.quantity cm³/ : 243.0...245.0
1000 s: (240.0...248.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 800
Del.quantity cm³/ : 255.0...259.0
1000 s: (252.0...262.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 125.0...127.0
1000 s: (122.0...130.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21,9 j 1
 Edition : 30.11.90
 Replaces : 19.6.90
 Test oil : ISO-4113
 Combination no. : 0 402 670 804
 Injection pump
 Pump designation : PE12P120A320LS7813-1
 EP type number : 0 412 620 811
 Governor
 Governor design. : RSV350...750POA825-5
 Governor no. : 0 421 833 277

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kw : 441.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 150...170

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 19.00...21.00
 Firing order : 12- 1- 5- 9- 8- 3-
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 180-225-240-285-300-
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 16.50...16.60

Del.quantity cm³/ : 27.9...28.1

100 s: (27.6...28.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.9

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 279.0...281.0

1000 : (276.0...284.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 20...28

Testing:

1st rack travel in: 15.50
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...788
4th rack travel in: 900
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7
Speed rpm : 350
Rack travel in mm : 5.50...5.90

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 265.0...285.0
1000 s: (261.0...289.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 c
 Edition : 01.02.91
 Replaces : 31.7.90
 Test oil : ISO-4113

Combination no. : 0 402 735 800

Injection pump
 Pump designation : PES5P120A720/3LS7210
 EP type number : 0 412 725 808
 Governor
 Governor design. : RQV325...1000PA962K
 Governor no. : 0 421 815 246

Customer-spec. information
 Customer : MAN

Engine : D2865LF03

1st version kW : 235.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60
 & maximum rack tra: 15.0...16.0
 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm³ : 0.6

2nd speed rpm : 325.0

Rack travel in mm : 5.9...6.3

Del.quantity cm³/ : 4.7...5.3

100 s: (4.4...5.6)

Spread cm³ : 1.0

100 s: (1.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 7.70...7.90

2nd speed rpm : 325

travel mm : 2.10...2.30

3rd speed rpm : 500

travel mm : 4.10...4.50

4th speed rpm : 900

travel mm : 6.40...6.80

5th speed rpm : 1350

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1200
Del.quantity : 244.0...246.0
1000 : (241.0...249.0)
Spread cm3 : 6.00

RATED SPEED

1st version
Control lever
position degrees: 283...291

Testing:
1st rack travel in: 11.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 240...248

Testing:
Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 325
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 340...450

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.90...13.00
2nd speed rpm : 900
Rack travel in m: 13.30...13.50
3rd speed rpm : 650
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 13.20...13.50

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 9.20...9.40

2nd pressure hPa : 170
Rack travel in m: 9.60...9.70
3rd pressure hPa : 600
Rack travel in m: 12.10...12.30

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm3/ : 261.0...265.0
1000 s: (258.0...268.0)
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm3/ : 264.0...270.0
1000 s: (261.0...273.0)
Speed rpm : 650
Del.quantity cm3/ : 90.0...100.0
1000 s: (87.0...103.0)
Spread cm3 : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 159.0...161.0
1000 s: (156.0...164.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.90...6.30
Del.quantity cm3/ : 47.0...53.0
1000 s: (44.0...56.0)
Spread cm3 : 10.00
1000 s: (14.00)

Remarks: : MAN-NR. 3-7048

Setting and blocking of pointer of

start-of-delivery sensor on cyl. 5
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 c1
 Edition : 01.02.91
 Replaces : 6.7.90
 Test oil : ISO-4113

Combination no. : 0 402 735 801

Injection pump
 Pump designation : PES5P120A720/3LS7210
 EP type number : 0 412 725 808
 Governor
 Governor design. : RQV325...1000PA960K
 Governor no. : 0 421 815 247

Customer-spec. information
 Customer : MAN

Engine : D2865LF03

1st version kW : 235.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60
 & maximum rack tra: 15.0...16.0
 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 6.0...6.4
 Del. quantity cm³/ : 4.7...5.3
 100 s: (4.4...5.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 9.40...9.60
 2nd speed rpm : 325
 travel mm : 1.30...1.50
 3rd speed rpm : 500
 travel mm : 3.20...3.80
 4th speed rpm : 900
 travel mm : 7.60...8.00
 5th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h: 1200
Del.quantity : 244.0...246.0
1000 : (241.0...249.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 293...301

Testing:

1st rack travel in: 11.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 249...257

Testing:

Speed rpm : 100
Minimum rack trave: 7.70
Speed rpm : 325
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 340...450

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.90...13.00
2nd speed rpm : 900
Rack travel in m: 13.30...13.50
3rd speed rpm : 650
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 170
Rack travel in m: 9.60...9.70
3rd pressure hPa : 600
Rack travel in m: 12.10...12.30

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ : 261.0...265.0
1000 s: (258.0...268.0)
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 264.0...270.0
1000 s: (261.0...273.0)
Speed rpm : 650
Del.quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)
Spread cm³ : 10.00
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 159.0...161.0
1000 s: (156.0...164.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.00...6.40
Del.quantity cm³/ : 47.0...53.0
1000 s: (44.0...56.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7049

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 c2
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 735 802
 Injection pump
 Pump designation : PES5P120A720/3LS7210
 EP type number : 0 412 725 808
 Governor
 Governor design. : RQV325...1000PA962-2
 K
 Governor no. : 0 421 815 269

Customer-spec. information
 Customer : MAN

Engine : D2865LF06/LU06
 1st version kW : 235.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60
 & maximum rack tra: 15.0...16.0
 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 13.50...13.60
 Del.quantity cm³/ : 26.9...27.1
 100 s: (26.6...27.4)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 325.0
 Rack travel in mm : 5.9...6.3
 Del.quantity cm³/ : 4.7...5.3
 100 s: (4.4...5.6)
 Spread cm³ : 1.0
 100 s: (1.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 8.30...8.50
 2nd speed rpm : 325
 travel mm : 2.00...2.20
 3rd speed rpm : 500
 travel mm : 4.00...4.60
 4th speed rpm : 900
 travel mm : 6.40...6.80
 5th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900
Aneroid pressure h: 1200
Del.quantity : 269.0...271.0
1000 : (266.0...274.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 283...291

Testing:

1st rack travel in: 12.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 240...248

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 325
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 340...450

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.50...13.60
2nd speed rpm : 1000
Rack travel in m: 13.10...13.30
3rd speed rpm : 650
Rack travel in m: 12.70...12.90
4th speed rpm : 400
Rack travel in m: 11.90...12.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 170
Rack travel in m: 9.60...9.70
3rd pressure hPa : 600
Rack travel in m: 12.00...12.40

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm³/ : 248.0...254.0
1000 s: (245.0...257.0)
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 270.0...276.0
1000 s: (267.0...279.0)
Speed rpm : 650
Del.quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)
Spread cm³ : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 159.0...161.0
1000 s: (156.0...164.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.90...6.30
Del.quantity cm³/ : 47.0...53.0
1000 s: (44.0...56.0)

Spread cm³ : 10.00
 1000 s: (14.00)

Remarks:
 : MAN-NR. 3-7123
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 c3
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 735 803

Injection pump
 Pump designation : PES5P120A720/3LS7210
 EP type number : 0 412 725 808
 Governor
 Governor design. : RQV325...1000PA960-3
 K
 Governor no. : 0 421 815 271

Customer-spec. information
 Customer : MAN

Engine : D2865LF06/LU06

1st version kW : 235.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60
 & maximum rack tra: 15.0...16.0
 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 26.9...27.1

100 s: (26.6...27.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 5.9...6.3

Del. quantity cm³/ : 4.7...5.3

100 s: (4.4...5.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 9.40...9.60

2nd speed rpm : 325
 travel mm : 1.30...1.50

3rd speed rpm : 500
 travel mm : 3.20...3.80

4th speed rpm : 900
 travel mm : 7.60...8.00

5th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900
Aneroid pressure h: 1200
Del.quantity : 269.0...271.0
1000 : (266.0...274.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 293...301

Testing:

1st rack travel in: 12.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 249...257

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 325
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 340...450

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.50...13.60
2nd speed rpm : 1000
Rack travel in m: 13.10...13.30
3rd speed rpm : 650
Rack travel in m: 12.70...12.90
4th speed rpm : 400
Rack travel in m: 11.90...12.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 900

1st pressure hPa : -

Rack travel in m: 9.20...9.40

2nd pressure hPa : 170

Rack travel in m: 9.60...9.70

3rd pressure hPa : 600

Rack travel in m: 12.00...12.40

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm3/ : 248.0...254.0
1000 s: (245.0...257.0)
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm3/ : 270.0...276.0
1000 s: (267.0...279.0)
Speed rpm : 650
Del.quantity cm3/ : 90.0...100.0
1000 s: (87.0...103.0)
Spread cm3 : 10.00
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 159.0...161.0
1000 s: (156.0...164.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 12.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.90...6.30
Del.quantity cm3/ : 47.0...53.0
1000 s: (44.0...56.0)

Spread cm³ : 8.00
 1000 s: (12.00)

Remarks:

 : MAN-NR. 3-7124
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r
 Edition : 14.12.90
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 402 736 807

Injection pump
 Pump designation : PES6P110A12ORS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1100PA964-1
 K
 Governor no. : 0 421 815 253

Customer spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 201.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.70...15.80

Del. quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del. quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 64...72

Testing:
1st rack travel in: 14.40
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 15.70...15.80
2nd speed rpm : 650
Rack travel in m: 13.20...13.60
3rd speed rpm : 1100
Rack travel in m: 15.40...15.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1050
Pressure hPa : 1500
Rack travel mm : 15.70...15.80

Measurement

Speed 1/min : 1050

1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 340
Rack travel in m: 10.20...10.30
3rd pressure hPa : 840
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 275 (285)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ : 187.5...193.5
1000 s: (184.5...196.5)
Spread cm³ : 8.00
1000 s: (12.)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...102.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 11.40...12.40

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C # 3916627

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 t
 Edition : 18.01.91
 Replaces : 6.7.90
 Test oil : ISO-4113

Combination no. : 0 402 736 808

Injection pump
 Pump designation : PES6P120A720/3LS7209
 EP type number : 0 412 726 837
 Governor
 Governor design. : RQV300...1000PA962-1

Governer no. : 0 421 815 248

Customer-spec. information
 Customer : MAN

Engine : D2866LF06

1st version kW : 309.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.50...13.60

Del.quantity cm3/ : 28.5...28.7

100 s: (28.2...29.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 8.40...8.60

2nd speed rpm : 300

travel mm : 2.10...2.30

3rd speed rpm : 500

travel mm : 4.10...4.50

4th speed rpm : 900

travel mm : 6.50...6.90

5th speed rpm : 1350

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1300
Del.quantity : 285.0...287.0
1000 : (282.0...290.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 284...292

Testing:

1st rack travel in: 12.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 240...248

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 320...440

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.50...13.60
2nd speed rpm : 1000
Rack travel in m: 13.00...13.20
3rd speed rpm : 750
Rack travel in m: 12.70...12.90
4th speed rpm : 400
Rack travel in m: 11.50...11.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1300
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.80...9.00

2nd pressure hPa : 220
Rack travel in m: 9.10...9.20
3rd pressure hPa : 720
Rack travel in m: 11.40...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1000
Del.quantity cm³/ : 261.0...265.0
1000 s: (258.0...268.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm³/ : 271.0...277.0
1000 s: (268.0...280.0)
Speed rpm : 750
Del.quantity cm³/ : 102.0...112.0
1000 s: (99.0...115.0)
Spread cm³ : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 166.0...168.0
1000 s: (163.0...171.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm³/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7987

Setting and blocking of pointer of

start-of-delivery sensor on cyl. 6
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 t1
 Edition : 18.01.91
 Replaces : 6.7.90
 Test oil : ISO-4113

Combination no. : 0 402 736 809

Injection pump
 Pump designation : PES6P120A720/3LS7209
 EP type number : 0 412 726 837

Governor
 Governor design. : RQV300...1000PA960-2
 K
 Govenor no. : 0 421 815 249

Customer-spec. information
 Customer : MAN

Engine : D2866LF06

1st version kw : 309.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 28.5...28.7

100 s: (28.2...29.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm³/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 9.60...9.80

2nd speed rpm : 300

travel mm : 1.40...1.80

3rd speed rpm : 500

travel mm : 3.50...4.10

4th speed rpm : 900

travel mm : 7.70...8.10

5th speed rpm : 1350

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1300
Del.quantity : 285.0...287.0
1000 : (282.0...290.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 293...301

Testing:

1st rack travel in: 12.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 247...255

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 320...440

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.50...13.60
2nd speed rpm : 1000
Rack travel in m: 13.00...13.20
3rd speed rpm : 750
Rack travel in m: 12.70...12.90
4th speed rpm : 400
Rack travel in m: 11.50...11.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1300
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.80...9.00

2nd pressure hPa : 220
Rack travel in m: 9.10...9.20
3rd pressure hPa : 720
Rack travel in m: 11.40...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1000
Del.quantity cm³/ : 261.0...265.0
1000 s: (258.0...268.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm³/ : 271.0...277.0
1000 s: (268.0...280.0)
Speed rpm : 750
Del.quantity cm³/ : 102.0...112.0
1000 s: (99.0...115.0)
Spread cm³ : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 166.0...168.0
1000 s: (163.0...171.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm³/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7052

Setting and blocking of pointer of

start-of-delivery sensor on cyl. 6
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 6
 Edition : 14.12.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 812
 Injection pump
 Pump designation : PES6P110A12ORS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964-4
 K
 Governor no. : 0 421 815 256
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6CTA-A
 1st version kW : 156.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 047
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 115...125
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 12.60...12.70
 Del.quantity cm³/ : 14.7...14.9
 100 s: (14.4...15.2)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 2.7...3.3
 100 s: (2.5...3.5)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00
 2nd speed rpm : 450
 travel mm : 3.10...3.50
 3rd speed rpm : 700
 travel mm : 5.90...6.30
 4th speed rpm : 1200
 travel mm : 9.00...9.20
 5th speed rpm : 1400
 travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1200
 Del.quantity : 147.5...149.5
 1000 : (144.5...152.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 60...68

Testing:

1st rack travel in: 11.60
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1375...1405
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.60...12.70
2nd speed rpm : 650
Rack travel in m: 11.20...11.60
3rd speed rpm : 550
Rack travel in m: 10.90...11.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 1200
1st pressure hPa : -
Rack travel in m: 8.00...8.40
2nd pressure hPa : 225
Rack travel in m: 9.20...9.30
3rd pressure hPa : 515
Rack travel in m: 11.20...11.60

START CUT-OUT

Speed 1/min : 265 (270)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 152.5...158.5
1000 s: (149.5...161.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C # 3917088

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 4
 Edition : 07.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 402 736 813

Injection pump
 Pump designation : PES6P110A12ORS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RGV350...1100PA964-5
 K
 Governor no. : 0 421 815 257

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 187.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 18.6...18.8

100 s: (18.3...19.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 186.5...188.5

1000 : (183.5...191.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 13.50
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 13.50...13.70
3rd speed rpm : 500
Rack travel in m: 12.90...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 285
Rack travel in m: 9.70...9.80
3rd pressure hPa : 700
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 198.0...204.0
1000 s: (195.0...207.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...102.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 10.80...11.80

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C # 3916628

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 1
 Edition : 07.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 402 736 814

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964-6
 K
 Governor no. : 0 421 815 258

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 187.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 700

travel mm : 5.90...6.30

4th speed rpm : 1200

travel mm : 9.00...9.20

5th speed rpm : 1400

travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1200

Del.quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 13.50
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1405...1435
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 11.60...12.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement

Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 7.70...8.10
2nd pressure hPa : 270
Rack travel in m: 9.50...9.60
3rd pressure hPa : 700
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 167.5...173.5
1000 s: (164.5...176.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (135.0...165.0)
Rack travel in mm : 10.70...11.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C # 3917089

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 5
 Edition : 07.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 402 736 815

Injection pump
 Pump designation : PES6P110A12DRS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1000PA964-7
 K
 Governor no. : 0 421 815 259

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 194.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 15.80...15.90

Del.quantity cm³/ : 21.7...21.9

100 s: (21.4...22.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...1.80

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 600

travel mm : 5.20...5.60

4th speed rpm : 1000

travel mm : 8.40...8.60

5th speed rpm : 1150

travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1500

Del.quantity : 217.0...219.0

1000 : (214.0...222.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 62...70

Testing:

1st rack travel in: 14.30
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 15.80...15.90
2nd speed rpm : 650
Rack travel in m: 14.00...14.40
3rd speed rpm : 1000
Rack travel in m: 15.30...15.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1500
Rack travel mm : 15.80...15.90

Measurement

Speed 1/min : 900
1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 340
Rack travel in m: 10.20...10.30
3rd pressure hPa : 840
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ : 211.0...217.0
1000 s: (208.0...220.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...102.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.30
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 10.90...11.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C # 3916629

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 2
 Edition : 07.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 402 736 816

Injection pump
 Pump designation : PES6P110A12ORS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964-8
 K
 Governor no. : 0 421 815 264

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 213.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.70...14.80

Del.quantity cm³/ : 19.0...19.2
 100 s: (18.7...19.5)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 2.7...3.3
 100 s: (2.5...3.5)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00

2nd speed rpm : 450
 travel mm : 3.10...3.50

3rd speed rpm : 700
 travel mm : 5.90...6.30

4th speed rpm : 1200
 travel mm : 9.00...9.20

5th speed rpm : 1400
 travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del.quantity : 190.0...192.0
 1000 : (187.0...195.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 62...70

Testing:

1st rack travel in: 13.20
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.70...14.80
2nd speed rpm : 650
Rack travel in m: 12.60...13.00
3rd speed rpm : 1200
Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 14.70...14.80

Measurement

Speed 1/min : 1100
1st pressure hPa : -
Rack travel in m: 7.80...8.20
2nd pressure hPa : 260
Rack travel in m: 9.60...9.70
3rd pressure hPa : 710
Rack travel in m: 12.80...13.20

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 181.0...187.0
1000 s: (178.0...190.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (135.0...165.0)
Rack travel in mm : 10.70...11.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C # 3916626

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

Bow dimension:

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 t2
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 817

Injection pump
 Pump designation : PES6P120A720/3LS7209
 EP type number : 0 412 726 837
 Governor
 Governor design. : RQV300...1000PA962-3
 K
 Governor no. : 0 421 815 270

Customer-spec. information
 Customer : MAN

Engine : D2866LF09

1st version kW : 309.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.10...14.30

Del. quantity cm³/ : 30.4...30.6
 100 s: (30.1...30.9)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.8...5.2
 Del. quantity cm³/ : 2.0...2.6
 100 s: (1.7...2.9)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 8.30...8.50
 2nd speed rpm : 300
 travel mm : 1.90...2.30
 3rd speed rpm : 500
 travel mm : 4.00...4.60
 4th speed rpm : 900
 travel mm : 6.50...6.90
 5th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900

Aneroid pressure h: 1300
Del.quantity : 304.0...306.0
1000 : (301.0...309.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 284...292

Testing:

1st rack travel in: 12.60
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 239...247

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.10...14.20
2nd speed rpm : 1000
Rack travel in m: 13.60...13.80
3rd speed rpm : 750
Rack travel in m: 13.20...13.40
4th speed rpm : 400
Rack travel in m: 12.20...12.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1300
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 9.00...9.20

2nd pressure hPa : 220
Rack travel in m: 9.30...9.40
3rd pressure hPa : 720
Rack travel in m: 11.70...11.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1000
Del.quantity cm³/ : 276.0...282.0
1000 s: (273.0...285.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm³/ : 286.0...292.0
1000 s: (283.0...295.0)
Speed rpm : 750
Del.quantity cm³/ : 102.0...112.0
1000 s: (99.0...115.0)
Spread cm³ : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 168.0...170.0
1000 s: (165.0...173.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...220.0
1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm³/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7094

Setting and blocking of pointer of

start-of-delivery sensor on cyl. 6
start of delivery



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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 t3
 Edition : 14.12.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 818
 Injection pump
 Pump designation : PES6P120A720/3LS7209
 EP type number : 0 412 726 837
 Governor
 Governor design. : RQV300...1000PA960-4
 K
 Governor no. : 0 421 815 272
 Customer-spec. information
 Customer : MAN
 Engine : D2866LF09
 1st version kW : 309.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 14.10...14.30
 Del. quantity cm³/ : 30.4...30.6
 100 s: (30.1...30.9)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 300.0
 Rack travel in mm : 4.8...5.2
 Del. quantity cm³/ : 2.0...2.6
 100 s: (1.7...2.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 9.50...9.70
 2nd speed rpm : 300
 travel mm : 1.40...1.80
 3rd speed rpm : 500
 travel mm : 3.50...4.10
 4th speed rpm : 900
 travel mm : 7.70...8.10
 5th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900

Aneroid pressure h: 1300
Del.quantity : 304.0...306.0
1000 : (301.0...309.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 294...302

Testing:

1st rack travel in: 12.60
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 247...255

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.10...14.20
2nd speed rpm : 1000
Rack travel in m: 13.60...13.80
3rd speed rpm : 750
Rack travel in m: 13.20...13.40
4th speed rpm : 400
Rack travel in m: 12.20...12.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1300
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.90...9.10

2nd pressure hPa : 220
Rack travel in m: 9.20...9.30
3rd pressure hPa : 720
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1000
Del.quantity cm³/ : 276.0...282.0
1000 s: (273.0...285.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm³/ : 286.0...292.0
1000 s: (283.0...295.0)
Speed rpm : 750
Del.quantity cm³/ : 102.0...112.0
1000 s: (99.0...115.0)
Spread cm³ : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 168.0...170.0
1000 s: (165.0...173.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...220.0
1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm³/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7095

Setting and blocking of pointer of

start-of-delivery sensor on cyl. 6
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 x
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 819
 Injection pump
 Pump designation : PES6P120A720/3LS7227
 EP type number : 0 412 726 842
 Governor
 Governor design. : RQ750PA981
 Governor no. : 0 421 801 566

Customer-spec. information
 Customer : MAN

Engine : D2866 LXE

1st version kW : 300.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.70...4.80
 : (4.65...4.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.30...14.40

Del.quantity cm³/ : 33.9...34.1

100 s: (33.6...34.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.2...4.6

Del.quantity cm³/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm³ : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 339.0...341.0

1000 : (336.0...344.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 13.30

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 776...789

4th rack travel in: 950

Speed rpm : 0.00...1.00

Remarks:

: MAN-NR. 3-7119

APPLICATION

Generator set



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 12,2 a1
 Edition : 20.12.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 807
 Injection pump
 Pump designation : PES6P120A72ORS7121
 EP type number : 0 412 726 804
 Governor
 Governor design. : RQV250...1050PA793-2
 Governor no. : 0 421 813 699

Customer-spec. information
 Customer : PERKINS

Engine : EAGLE LE DROPS

1st version kW : 300.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 4- 2- 6- 3- 5

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.10...14.20

Del. quantity cm³/ : 23.8...24.0

100 s: (23.5...24.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 3.1...3.5

100 s: (2.8...3.8)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.90...1.30

2nd speed rpm : 350

travel mm : 2.90...3.50

3rd speed rpm : 700

travel mm : 4.00...4.60

4th speed rpm : 1000

travel mm : 7.40...7.60

5th speed rpm : 1100

travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 238.0...240.0
1000 : (235.0...243.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 13.10
Speed rpm : 1080...1090
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88

Testing:
Speed rpm : 100
Minimum rack travel: 7.80
Speed rpm : 250
Rack travel in mm : 6.30...6.50

CONSTANT REGULATION

Speed rpm : 250...520

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.10...11.30
2nd pressure hPa : 690
Rack travel in m: 13.50...13.60
3rd pressure hPa : 370
Rack travel in m: 11.70...11.90

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

HD6

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 160.0...162.0
1000 s: (157.0...165.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...170.0
1000 s: (126.0...174.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 31.0...35.0
1000 s: (28.0...38.0)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 a3
 Edition : 14.12.90
 Replaces : 15.11.90
 Test oil : ISO-4113
 Combination no. : 0 402 746 852
 Injection pump
 Pump designation : PES6P12QA72ORS7157
 EP type number : 0 412 726 814
 Governor
 Governor design. : RQV325...900PA909K
 Governor no. : 0 421 815 210

Customer-spec. information
 Customer : MACK TRUCKS

Engine : E7-400

1st version kw : 298.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow quantity min. 1/h: 160...170

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

 Rack travel in mm : 15.80...15.90

 Del. quantity cm³/ : 27.5...27.7
 100 s: (27.2...28.0)

 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 5.1...5.3
 Del. quantity cm³/ : 4.0...4.6
 100 s: (3.8...4.8)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40
 2nd speed rpm : 450
 travel mm : 2.80...3.20
 3rd speed rpm : 650
 travel mm : 5.60...5.80
 4th speed rpm : 900
 travel mm : 8.30...8.50
 5th speed rpm : 1100
 travel mm : 10.30...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200
 Del. quantity : 275.0...277.0
 1000 : (272.0...280.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 14.80
Speed rpm : 940...970
2nd rack travel in: 4.00
Speed rpm : 1130...1140
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.30
Speed rpm : 325
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 15.80...15.90
2nd speed rpm : 625
Rack travel in m: 15.20...15.40
3rd speed rpm : 700
Rack travel in m: 15.40...15.60
4th speed rpm : 500
Rack travel in m: 0.00...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 15.80...15.90

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 325
Rack travel in m: 10.20...10.30
3rd pressure hPa : 790
Rack travel in m: 13.80...14.20

START CUT-OUT

H08

Speed 1/min : 275 (285)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 625
Del.quantity cm³/ : 302.5...308.5
1000 s: (299.5...311.5)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 850
Del.quantity cm³/ : 159.0...161.0 *
1000 s: (136.5...157.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 157.5...161.5
1000 s: (155.5...163.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.80
Speed rpm : 940...970

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...230.0
1000 s: (180.0...240.0)
Rack travel in mm : 10.80...11.40

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.10...5.30
Del.quantity cm³/ : 40.0...46.0
1000 s: (38.0...48.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : MACK # 313GC5185-P6

Bow dimension:
Sliding-sleeve position = 37.0 mm
* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 a4
 Edition : 14.12.90
 Replaces : 15.11.90
 Test oil : ISO-4113

Combination no. : 0 402 746 853

Injection pump
 Pump designation : PES6P120A720RS7157
 EP type number : 0 412 726 814
 Governor
 Governor design. : RQV325...9C0PA909-1K
 Governor no. : 0 421 815 211

Customer-spec. information
 Customer : MACK TRUCKS

Engine : E7-350

1st version kW : 261.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow
 quantity min. 1/h: 160...170

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 23.1...23.3

100 s: (22.9...23.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.7...4.9

Del.quantity cm³/ : 4.0...4.6

100 s: (3.8...4.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.20

3rd speed rpm : 650

travel mm : 5.60...5.80

4th speed rpm : 900

travel mm : 8.30...8.50

5th speed rpm : 1100

travel mm : 10.30...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

Del.quantity : 231.5...233.5

1000 : (229.5...235.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 12.60
Speed rpm : 940...970
2nd rack travel in: 4.00
Speed rpm : 1105...1115
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack trave: 5.90
Speed rpm : 325
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.60...13.70
2nd speed rpm : 625
Rack travel in m: 13.30...13.50
3rd speed rpm : 500
Rack travel in m: 0.00...12.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.00...8.40
2nd pressure hPa : 325
Rack travel in m: 9.40...9.50
3rd pressure hPa : 685
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 275 (285)

H10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 625
Del.quantity cm3/ : 263.0...269.0
1000 s: (260.0...272.0)
Spread cm3 : 8.00
1000 s: (12.0)
Speed rpm : 850
Del.quantity cm3/ : 159.0...161.0 *
1000 s: (136.5...157.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 153.0...157.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 940...970

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 175.0...215.0
1000 s: (165.0...225.0)
Rack travel in mm : 9.00...11.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 40.0...46.0
1000 s: (38.0...48.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P2

Bow dimension:

Sliding-sleeve position = 37.0 mm
* This test specification applies only
to the engine/nozzle-and-holder
assemblies on an injection-pump test
bench: setting for test equipment,
check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 9,5 a 1
Edition : 14.12.90
Replaces : 8.6.90
Test oil : ISO-4113

Combination no. : 0 402 746 857

Injection pump
Pump designation : PES6P120A720RS7177
EP type number : 0 412 726 823
Governor
Governor design. : RQ275/1100PA915
Governor no. : 0 421 801 478

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8460.41.601

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 18.3...18.5
100 s: (18.0...18.8)

Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 5.7...5.9
Del.quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 900
Del.quantity : 183.0...185.0
1000 : (180.0...188.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.30
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Minimum rack trave: 7.30
Speed rpm : 275
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.60...12.70
2nd speed rpm : 600
Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...10.00
2nd pressure hPa : 320
Rack travel in m: 11.70...11.80
3rd pressure hPa : 260
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...155.0
1000 s: (121.0...159.0)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 h3
Edition : 07.01.91
Replaces : 15.11.90
Test oil : ISO-4113

Combination no. : 0 402 746 887

Injection pump
Pump designation : PES6P120A720RS7200
EP type number : 0 412 726 833
Governor
Governor design. : RQV325...975PA944-2K
Governor no. : 0 421 815 237

Customer-spec. information
Customer : MACK TRUCKS

Engine : E7-300A

1st version kW : 224.0
Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow
quantity min. 1/h: 160...170

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 11.00...13.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 340.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 3.1...3.7

100 s: (2.9...3.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60

2nd speed rpm : 450

travel mm : 2.80...3.20

3rd speed rpm : 950

travel mm : 7.90...8.10

4th speed rpm : 1200

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Aneroid pressure h: 1200

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 12.00
Speed rpm : 1015...1045
2nd rack travel in: 4.00
Speed rpm : 1180...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 13.00...13.10
2nd speed rpm : 600
Rack travel in m: 12.20...12.40
3rd speed rpm : 500
Rack travel in m: 11.20...11.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 975
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 975

1st pressure hPa : -
Rack travel in m: 8.00...8.40
2nd pressure hPa : 325
Rack travel in m: 9.40...9.50
3rd pressure hPa : 640
Rack travel in m: 11.70...12.10

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 240.5...246.5
1000 s: (237.5...249.5)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm³/ : 199.0...201.0 *
1000 s: (180.5...207.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 149.0...153.0
1000 s: (147.0...155.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1015...1045

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 31.0...37.0
1000 s: (29.0...39.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5188-P8

Bow dimension:

Sliding-sleeve position = 37.0 mm
* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 h
 Edition : 14.12.90
 Replaces : 15.11.90
 Test oil : ISO-4113
 Combination no. : 0 402 746 890
 Injection pump
 Pump designation : PES6P120A720RS7200
 EP type number : 0 412 726 833
 Governor
 Governor design. : RQV325...875PA944-5K
 Governor no. : 0 421 815 240

Customer-spec. information
 Customer : MACK TRUCKS

Engine : EM7-275

1st version kw : 202.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Overflow
 quantity min. 1/h: 160...170

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 340.0

Rack travel in mm : 4.6...4.8

Del.quantity cm³/ : 3.1...3.7

100 s: (2.9...3.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60

2nd speed rpm : 450
 travel mm : 3.30...3.70

3rd speed rpm : 700
 travel mm : 7.90...8.30

4th speed rpm : 900
 travel mm : 9.40...9.60

5th speed rpm : 1050
 travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h: 1200
 Del.quantity : 235.5...237.5
 1000 : (232.5...240.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 60...68

Testing:

1st rack travel in: 12.20
Speed rpm : 915...945
2nd rack travel in: 4.00
Speed rpm : 1065...1075
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 13.20...13.30
2nd speed rpm : 510
Rack travel in m: 13.80...14.00
3rd speed rpm : 600
Rack travel in m: 13.80...14.00
4th speed rpm : 450
Rack travel in m: 12.90...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 13.80...14.00

Measurement

Speed 1/min : 510
1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 310
Rack travel in m: 10.10...10.20
3rd pressure hPa : 635
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del.quantity cm³/ : 311.0...317.0
1000 s: (308.0...320.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm³/ : 199.0...201.0 *
1000 s: (150.0...172.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 155.5...159.5
1000 s: (153.5...161.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 915...945

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ : 31.0...37.0
1000 s: (29.0...39.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5188-P4

Bow dimension:

Sliding-sleeve position = 37.0 mm
* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 h4
 Edition : 07.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113
 Combination no. : 0 402 746 891
 Injection pump
 Pump designation : PES6P120A720RS7200
 EP type number : 0 412 726 833
 Governor
 Governor design. : RQV325...875PA944-6K
 Governor no. : 0 421 815 241

Customer-spec. information
 Customer : MACK TRUCKS

Engine : EM7-250

1st version kW : 187.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow quantity min. 1/h: 160...170

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875
 Rack travel in mm : 12.50...12.60
 Del.quantity cm3/ : 21.5...21.7
 100 s: (21.2...22.0)
 Spread cm3 : 0.5
 100 s: (0.9)

2nd speed rpm : 340.0
 Rack travel in mm : 4.6...4.8
 Del.quantity cm3/ : 3.1...3.7
 100 s: (2.9...3.9)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 3.30...3.70
 3rd speed rpm : 700
 travel mm : 7.90...8.30
 4th speed rpm : 900
 travel mm : 9.40...9.60
 5th speed rpm : 1050
 travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h: 1200
 Del.quantity : 215.0...217.0
 1000 : (212.0...220.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 11.50
Speed rpm : 915...945
2nd rack travel in: 4.00
Speed rpm : 1045...1055
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 12.50...12.60
2nd speed rpm : 510
Rack travel in m: 13.40...13.60
3rd speed rpm : 600
Rack travel in m: 13.40...13.60
4th speed rpm : 450
Rack travel in m: 12.60...13.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 13.40...13.60

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 285
Rack travel in m: 10.00...10.10
3rd pressure hPa : 570
Rack travel in m: 12.30...12.70

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 510
Del.quantity cm³/ : 291.5...297.5
1000 s: (288.5...300.5)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm³/ : 199.0...201.0 *
1000 s: (150.0...172.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 153.0...157.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 915...945

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ : 31.0...37.0
1000 s: (29.0...39.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5188-P2

Bow dimension:
Sliding-sleeve position = 37.0 mm
* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 h5
 Edition : 07.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113
 Combination no. : 0 402 746 892
 Injection pump
 Pump designation : PES6P120A72ORS7200
 EP type number : 0 412 726 833
 Governor
 Governor design. : RQV325...975PA944-7K
 Governor no. : 0 421 815 242

Customer-spec. information
 Customer : MACK TRUCKS

Engine : E7-250A

1st version kW : 180.0
 Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Overflow
 quantity min. 1/h: 160...170

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 20.5...20.7

100 s: (20.2...21.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 340.0
 Rack travel in mm : 4.8...5.0
 Del.quantity cm³/ : 3.1...3.7
 100 s: (2.9...3.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 2.80...3.20
 3rd speed rpm : 950
 travel mm : 7.90...8.10
 4th speed rpm : 1200
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 975
 Aneroid pressure h: 1200
 Del.quantity : 205.5...207.5
 1000 : (202.5...210.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 11.30
Speed rpm : 1015...1045
2nd rack travel in: 4.00
Speed rpm : 1175...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 12.30...12.40
2nd speed rpm : 600
Rack travel in m: 12.10...12.30
3rd speed rpm : 800
Rack travel in m: 12.30...12.50
4th speed rpm : 500
Rack travel in m: 11.40...11.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 975
Pressure hPa : 1200
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 975

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 330
Rack travel in m: 9.70...9.80
3rd pressure hPa : 570
Rack travel in m: 11.40...11.80

START CUT-OUT

Speed 1/min : 250 (255)

H2O

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm3/ : 233.0...239.0
1000 s: (230.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm3/ : 199.0...201.0 *
1000 s: (150.0...172.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 154.0...158.0
1000 s: (152.0...160.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1015...1045

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 31.0...37.0
1000 s: (29.0...39.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5188-P6

Bow dimension:
Sliding-sleeve position = 37.0 mm
* This test specification applies only
to the engine/nozzle-and-holder
assemblies on an injection-pump test
bench: setting for test equipment,
check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 h2
 Edition : 07.01.91
 Replaces : 15.11.90
 Test oil : ISO-4113

 Combination no. : 0 402 746 896

 Injection pump
 Pump designation : PES6P120A720RS7200
 EP type number : 0 412 726 833
 Governor
 Governor design. : RQV325...900PA944-11
 K
 Governor no. : 0 421 815 260

 Customer-spec. information
 Customer : MACK TRUCKS

 Engine : E7-350

 1st version kW : 261.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

 Overflow valve : 2 417 413 011

 Overflow quantity min. 1/h: 160...170

 Test nozzle holder assembly : 1 688 901 101

 Opening pressure, bar : 207...210

 Orifice plate diameter mm : 0,6

 Test lines : 1 680 750 008

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

 Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

 Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

 Rack travel in mm : 14.50...14.60

 Del.quantity cm³/ : 27.7...27.9
 100 s: (27.4...28.2)

 Spread cm³ : 0.5
 100 s: (0.9)

 2nd speed rpm : 340.0
 Rack travel in mm : 4.6...4.8
 Del.quantity cm³/ : 3.1...3.7
 100 s: (2.9...3.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 2.80...3.20
 3rd speed rpm : 700
 travel mm : 6.00...6.40
 4th speed rpm : 900
 travel mm : 8.50...8.70
 5th speed rpm : 1050
 travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200
 Del.quantity : 277.5...279.5
 1000 : (274.5...282.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 13.50
Speed rpm : 940...970
2nd rack travel in: 4.00
Speed rpm : 1115...1125
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.50...14.60
2nd speed rpm : 625
Rack travel in m: 13.80...14.00
3rd speed rpm : 800
Rack travel in m: 14.20...14.40
4th speed rpm : 675
Rack travel in m: 13.80...14.00
5th speed rpm : 500
Rack travel in m: 12.30...12.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.10...8.50
2nd pressure hPa : 400
Rack travel in m: 9.80...9.90
3rd pressure hPa : 775

Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 625
Del.quantity cm³/ : 290.0...296.0
1000 s: (287.0...299.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm³/ : 199.0...201.0 *
1000 s: (180.5...207.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 150.0...154.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 940...970

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ : 31.0...37.0
1000 s: (29.0...39.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5188-P12

Bow dimension:

Sliding-sleeve position = 37.0 mm
* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 h1
Edition : 14.12.90
Replaces : 15.11.90
Test oil : ISO-4113

Combination no. : 0 402 746 897

Injection pump
Pump designation : PES6P120A720RS7200
EP type number : 0 412 726 833
Governor
Governor design. : RQV325...875PA944-12
K

Governer no. : 0 421 815 261

Customer-spec. information
Customer : MACK TRUCKS

Engine : EM7-300

1st version kW : 224.0
Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 011

Overflow
quantity min. 1/h: 160...170

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 11.00...13.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875
Rack travel in mm : 14.00...14.10
Del.quantity cm³/ : 25.0...25.2
100 s: (24.7...25.5)
Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 340.0
Rack travel in mm : 4.6...4.8
Del.quantity cm³/ : 3.1...3.7
100 s: (2.9...3.9)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.40...1.60
2nd speed rpm : 450
travel mm : 3.30...3.70
3rd speed rpm : 700
travel mm : 7.90...8.30
4th speed rpm : 900
travel mm : 9.40...9.60
5th speed rpm : 1050
travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 875
Aneroid pressure h: 1200
Del.quantity : 250.0...252.0
1000 : (247.0...255.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 13.00
Speed rpm : 915...945
2nd rack travel in: 4.00
Speed rpm : 1075...1085
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 14.00...14.10
2nd speed rpm : 510
Rack travel in m: 14.70...14.90
3rd speed rpm : 575
Rack travel in m: 14.70...14.90
4th speed rpm : 450
Rack travel in m: 13.80...14.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 510
1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 370
Rack travel in m: 10.30...10.40
3rd pressure hPa : 760
Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del.quantity cm³/ : 328.0...334.0
1000 s: (325.0...337.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm³/ : 199.0...201.0 *
1000 s: (159.5...183.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 156.0...160.0
1000 s: (154.0...162.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 915...945

STARTING FUEL DELIVERY

Speed rpm : 190
Del.quantity cm³/ : 190.0...230.0
1000 s: (180.0...240.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ : 31.0...37.0
1000 s: (29.0...39.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5188-P10

Bow dimension:

Sliding-sleeve position = 37.0 mm
* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 L
Edition : 18.01.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 746 898
Injection pump
Pump designation : PES6P120A320RS7215
EP type number : 0 412 726 838
Governor
Governor design. : RQV250...1000PA797
Governor no. : 0 421 813 876

Customer-spec. information

Customer : ENASA
Engine : 96 R1 FX

1st version kW : 294.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder assembly : 1 688 901 019
Opening pressure, bar : 207...210
Orifice plate diameter mm : 0,8
Test lines : 1 680 750 067
Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600
Rack travel in mm : 13.00...13.10
Del. quantity cm³/ : 28.7...28.9
100 s: (28.4...29.2)
Spread cm³ : 0.5
100 s: (0.9)
2nd speed rpm : 250.0
Rack travel in mm : 5.6...6.0
Del. quantity cm³/ : 1.0...1.6
100 s: (0.7...1.9)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 350
travel mm : 2.10...2.60
3rd speed rpm : 700
travel mm : 4.70...5.30
4th speed rpm : 1055
travel mm : 7.90...8.10
5th speed rpm : 1145
travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1070
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1200

Del.quantity : 287.0...289.0
1000 : (284.0...292.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 102...110

Testing:

1st rack travel in: 12.00
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 73...81

Testing:

Speed rpm : 100
Minimum rack travel: 5.00
Speed rpm : 250
Rack travel in mm : 3.30...3.70

CONSTANT REGULATION

Speed rpm : 250...320

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 880
Rack travel in m: 12.40...12.50
3rd pressure hPa : 675
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

H27

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm3/ : 280.0...286.0
1000 s: (277.0...289.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 201.0...204.0
1000 s: (198.0...207.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (131.0...159.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.30...3.70

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 9,5 a 2
Edition : 01.02.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 746 900
Injection pump
Pump designation : PES6P120A720RS7177
EP type number : 0 412 726 823
Governor
Governor design. : RQ275/1100PA915-1
Governor no. : 0 421 801 551

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8460.41.601

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 105
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 008
Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 5.00...5.10
 : (4.95...5.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 12.10...12.20
Del.quantity cm³/ : 18.3...18.5
100 s: (18.0...18.8)
Spread cm³ : 0.5
100 s: (0.9)
2nd speed rpm : 275.0
Rack travel in mm : 5.4...5.6
Del.quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 900
Del.quantity : 183.0...185.0
1000 : (180.0...188.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 20.0
Testing:
1st rack travel in: 11.10
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 275
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.50...12.60
2nd speed rpm : 600
Rack travel in m: 12.50...12.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 300
Rack travel in m: 11.40...11.50
3rd pressure hPa : 230
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 108.0...110.0
1000 s: (105.0...113.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10

J01

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...170.0
1000 s: (136.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 9,5 g
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 904
 Injection pump
 Pump designation : PES6P120A720RS7154
 EP type number : 0 412 726 811
 Governor
 Governor design. : RQ275/1100PA980
 Governor no. : 0 421 801 555

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8460.41.101

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test Lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 11.60...11.70
 Del.quantity cm³/ : 19.3...19.5
 100 s: (19.0...19.8)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 4.7...5.1
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del.quantity : 193.0...195.0
 1000 : (190.0...198.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 10.60
 Speed rpm : 1145...1160
 2nd rack travel in: 4.00
 Speed rpm : 1225...1255

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack travel: 7.30
Speed rpm : 275
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.60...11.70
2nd speed rpm : 600
Rack travel in m: 11.60...11.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 8.80...10.00
2nd pressure hPa : 415
Rack travel in m: 10.90...11.00
3rd pressure hPa : 250
Rack travel in m: 9.40...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 127.0...129.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...130.0
1000 s: (106.0...134.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 4
 Edition : 25.01.91
 Replaces : 06.07.90
 Test oil : ISO-4113

Combination no. : 0 403 436 107

Injection pump
 Pump designation : PES6MM100/120RS1143
 EP type number : 0 413 406 137
 Governor
 Governor design. : RQV350...1100MW82-2
 Governor no. : 0 420 083 161

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA

1st version kW : 186.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.05...3.15
 : (3.00...3.20)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 15.0...15.2

100 s: (14.8...15.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.6...7.7

Del.quantity cm³/ : 1.6...2.0

100 s: (1.4...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 9.00...9.40

2nd speed rpm : 1140

travel mm : 7.80...8.00

3rd speed rpm : 700

travel mm : 3.80...4.40

4th speed rpm : 350

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 150.0...152.0

1000 : (148.0...154.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever
position degrees: 42...50

Testing:

1st rack travel in: 11.70
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.6

Testing:

Speed rpm : 100
Minimum rack travel: 8.80
Speed rpm : 350
Rack travel in mm : 7.60...7.70

CONSTANT REGULATION

Speed rpm : 360...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.60...13.70
3rd speed rpm : 900
Rack travel in m: 12.90...13.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.80...10.90
2nd pressure hPa : 570
Rack travel in m: 12.30...12.60
3rd pressure hPa : 900
Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 159.0...161.0
1000 s: (157.0...163.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (202.0...228.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.60...7.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (14.0...22.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CDC #3915168

Start-of-delivery mark/lock = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 V 3
 Edition : 18.01.91
 Replaces : 30.11.90
 Test oil : ISO-4113
 Combination no. : 0 403 446 266
 Injection pump
 Pump designation : PES6MW100/320RS1185
 EP type number : 0 413 406 170
 Governor
 Governor design. : RQV350...1200MW46-35
 Governor no. : 0 420 083 229

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 186.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.75...3.85
 : (3.70...3.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800
 Rack travel in mm : 13.50...13.60
 Del.quantity cm3/ : 13.7...13.9
 100 s: (13.5...14.1)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm3/ : 1.4...1.8
 100 s: (1.1...2.0)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.80...9.20
 2nd speed rpm : 1250
 travel mm : 7.90...8.10
 3rd speed rpm : 550
 travel mm : 3.10...3.70
 4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 800
 Aneroid pressure h: 900
 Del.quantity : 137.0...139.0
 1000 : (135.0...141.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 105...113

Testing:
1st rack travel in: 12.50
Speed rpm : 1280...1300
2nd rack travel in: 4.00
Speed rpm : 1415...1425
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 225
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.40
2nd pressure hPa : 525
Rack travel in m: 12.30...12.70
3rd pressure hPa : 900
Rack travel in m: 13.50...13.60

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1200
Del.quantity cm3/ : 134.0...138.0
1000 s: (132.0...140.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 62.5...64.5
1000 s: (60.5...66.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 1280...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: IHC #1817113C91

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 V 2
 Edition : 25.01.91
 Replaces : 16.11.90
 Test oil : ISO-4113

Combination no. : 0 403 446 267

Injection pump
 Pump designation : PES6MM100/32ORS1185
 EP type number : 0 413 406 170
 Governor
 Governor design. : RQV350...1200MW46-36
 Governor no. : 0 420 083 230

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.75...3.85
 : (3.70...3.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.5...12.7
 100 s: (12.3...12.9)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.1...2.0)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.80...9.20
 2nd speed rpm : 1250
 travel mm : 7.90...8.10
 3rd speed rpm : 550
 travel mm : 3.10...3.70
 4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 800
 Aneroid pressure h: 900
 Del.quantity : 125.5...127.5
 1000 : (123.5...129.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
1st rack travel in: 11.70
Speed rpm : 1275...1295
2nd rack travel in: 4.00
Speed rpm : 1410...1420
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 280
Rack travel mm : 10.70...10.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in mm : 9.80...9.90
2nd pressure hPa : 500
Rack travel in mm : 11.90...12.30
3rd pressure hPa : 900
Rack travel in mm : 12.70...12.80

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1200
Del.quantity cm³/ : 124.5...128.5
1000 s: (122.5...130.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 71.5...73.5
1000 s: (69.5...75.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1275...1295

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : IHC #1817110C91

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 V1
 Edition : 25.01.91
 Replaces : 16.11.90
 Test oil : ISO-4113

Combination no. : 0 403 446 268

Injection pump
 Pump designation : PES6MM100/320RS1185
 EP type number : 0 413 406 170
 Governor
 Governor design. : RQV350...1200MW46-37
 Governor no. : 0 420 083 231

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.75...3.85
 : (3.70...3.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.80...9.20

2nd speed rpm : 1250
 travel mm : 7.90...8.10

3rd speed rpm : 550
 travel mm : 3.10...3.70

4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 800
 Aneroid pressure h: 900
 Del.quantity : 125.5...127.5
 1000 : (123.5...129.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
1st rack travel in: 11.70
Speed rpm : 1275...1295
2nd rack travel in: 4.00
Speed rpm : 1410...1420
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 9.20...9.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.10...8.20
2nd pressure hPa : 435
Rack travel in m: 11.40...11.80
3rd pressure hPa : 900
Rack travel in m: 12.70...12.80

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1200
Del.quantity cm³/ : 124.5...128.5
1000 s: (122.5...130.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 45.0...47.0
1000 s: (43.0...49.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1275...1295

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : IHC #1817111C91

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 1
 Edition : 01.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 274
 Injection pump
 Pump designation : PES6MW100/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RQ300/1300MW105-3
 Governor no. : 0 420 082 050

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400

travel mm : 8.80...9.20

2nd speed rpm : 1300

travel mm : 7.50...7.70

3rd speed rpm : 500

travel mm : 4.90...5.50

4th speed rpm : 300

travel mm : 2.10...2.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: 107

Speed rpm : 1200

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 96...104

Setting point:
Speed rpm : 1200
Rack travel in mm : 15.5

Testing:
1st rack travel in: 9.90
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 510...550

TORQUE CONTROL
Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 11.60...11.70
3rd speed rpm : 1100
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 290
Rack travel mm : 10.20...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.80
2nd pressure hPa : 400
Rack travel in m: 11.10...11.40
3rd pressure hPa : 700
Rack travel in m: 11.60...11.70

START CUT-OUT
Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 H 2
 Edition : 25.01.91
 Replaces : 13.10.89
 Test oil : ISO-4113

Combination no. : 0 403 466 113

Injection pump
 Pump designation : PES6MW100/120RS1137-
 1
 EP type number : 0 413 406 157
 Governor
 Governor design. : RSV450...1100MW2A319
 -13
 Governor no. : 0 420 085 114

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 410 270 183

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 15.0...15.2
 100 s: (14.8...15.4)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Del.quantity : 150.5...152.5
 1000 : (148.5...154.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Setting point:
 Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.50
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1200...1230
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1370
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 6.20...6.40

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.00...14.10
2nd speed rpm : 1100
Rack travel in m: 12.50...12.70
3rd speed rpm : 950
Rack travel in m: 13.20...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del.quantity cm3/ : 130.5...133.5
1000 s: (128.0...136.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 32
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 474 010

Injection pump
 Pump designation : PES4MM100/72ORS1127
 EP type number : 0 413 404 103
 Governor
 Governor design. : RSV350...750MWOA336-5
 Governor no. : 0 420 085 164

Customer-spec. information
 Customer : MB-NFZ

Engine : OM364A

1st version kW : 84.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 9.5...9.7

100 s : (9.3...9.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.5...7.7

Del. quantity cm³/ : 0.9...1.3

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 95.0...97.0

1000 : (93.0...99.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 72...80

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.80

Speed rpm : 750...755 *
2nd rack travel in: 4.00
Speed rpm : 780...793
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 60...68
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.6
Speed rpm : 350
Rack travel in mm : 7.50...7.70

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.50...7.70
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
Add 30...43 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Observe VDT-I-420/120

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 6,1 P 4
 Edition : 18.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 096
 Injection pump
 Pump designation : PES6MM100/320RS1132
 EP type number : 0 413 406 124
 Governor
 Governor design. : RSV650...750MM4A311-4
 Governor no. : 0 420 085 161

Customer-spec. information
 Customer : PENTA

Engine : TD 61 AG

1st version kW : 93.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.90...3.00
 : (2.85...3.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 650.0

Rack travel in mm : 6.0...6.4

Del.quantity cm³/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 83...91

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.80

Speed rpm : 748...753

2nd rack travel in: 4.00

Speed rpm : 773...788

3rd rack travel in: 4.00
Speed rpm : 805...820
4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1
Control Lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 5.50...5.90

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 748...753

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.00...6.40
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 B
Edition : 05.11.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 486 103
Injection pump
Pump designation : PES6MW100/321RS1208
EP type number : 0 413 406 199
Governor
Governor design. : RSV300...1100MWOA802
-2
Governor no. : 0 420 085 156

Customer-spec. information
Customer : MAN

Engine : D0826LE 10

1st version kw : 165.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.00...14.10

Del. quantity cm³/ : 13.6...13.8

100 s: (13.4...14.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 136.0...138.0

1000 : (134.0...140.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 111...119

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00

Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 61...69
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.0...5.2

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 137.0...140.0
1000 s: (134.5...142.5)
Spread cm3 : 5.00
1000 s: (7.0)
Speed rpm : 800
Del.quantity cm3/ : 140.0...143.0
1000 s: (137.5...145.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.0...5.2
Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 B 1
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 486 104

Injection pump
 Pump designation : PES6MM100/321RS1208
 EP type number : 0 413 406 199
 Governor
 Governor design. : RSV300...1100MWOA339
 -3
 Governor no. : 0 420 085 165

Customer-spec. information
 Customer : MAN

Engine : D0826LE 10

1st version kW : 165.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 13.5...13.7

100 s: (13.3...13.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

Del.quantity : 135.0...137.0

1000 : (133.0...139.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : 170
Rack travel in m: 11.50...11.60
2nd pressure hPa : 400
Rack travel in m: 13.20...13.50
3rd pressure hPa : 1000
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 135.5...138.5
1000 s: (133.0...141.0)
Spread cm³ : 5.00
1000 s: (7.09)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 141.5...144.5
1000 s: (139.0...147.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7102
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 6,5 F
Edition : 25.01.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 546 020
Injection pump
Pump designation : PE6MW100/720RS1157
EP type number : 0 413 506 103
Governor
Governor design. : RQ250/1200MW94-2
Governor no. : 0 420 082 047

Customer-spec. information
Customer : SNF

Engine : WD 612.66

1st version kW : 165.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200
Rack travel in mm : 13.80...13.90
Del.quantity cm3/ : 13.8...14.0
100 s: (13.6...14.2)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 250.0
Rack travel in mm : 5.8...6.0
Del.quantity cm3/ : 1.2...1.6
100 s: (0.9...1.8)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320
travel mm : 9.00...9.40
2nd speed rpm : 1250
travel mm : 6.20...6.40
3rd speed rpm : 375
travel mm : 3.30...3.90
4th speed rpm : 250
travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: 107
Speed rpm : 800
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h: 900
Del.quantity : 138.0...140.0
1000 : (136.0...142.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 94...102

Setting point:
Speed rpm : 800
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.80
Speed rpm : 1235...1250
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.9

Testing:
Speed rpm : 150
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.80...6.00

CONSTANT REGULATION
Speed rpm : 260...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 400
Rack travel mm : 11.50...11.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.10
2nd pressure hPa : 660
Rack travel in m: 12.90...13.20
3rd pressure hPa : 900
Rack travel in m: 13.80...13.90

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

J25

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 137.0...141.0
1000 s: (135.0...143.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 82.0...84.0
1000 s: (80.0...86.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1235...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D11
 Edition : 18.01.91
 Replaces : 13.10.89
 Test oil : ISO-4113
 Combination no. : 0 403 548 024
 Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQV300...1150MW56-4
 Governor no. : 0 420 083 155

Customer-spec. information
 Customer : KHD

Engine : BF 8L 513

1st version kW : 243.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 13.60...13.70
 Del. quantity cm³/ : 15.1...15.3
 100 s: (14.9...15.5)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 1.3...1.7
 100 s: (1.1...1.9)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320
 travel mm : 10.00...10.40
 2nd speed rpm : 1210
 travel mm : 8.80...9.00
 3rd speed rpm : 600
 travel mm : 3.90...4.50
 4th speed rpm : 300
 travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1000
 Del. quantity : 151.0...153.0
 1000 : (149.0...155.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Setting point:
Speed rpm : 1150
Rack travel in mm : 16.5

Testing:
1st rack travel in: 12.60
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 430...490

CONSTANT REGULATION
Speed rpm : 310...420

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 710
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...11.90
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000
Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm³/ : 108.0...110.0
1000 s: (106.0...112.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 17,4 a
 Edition : 16.01.91
 Replaces : 29.5.90
 Test oil : ISO-4113

Combination no. : 0 405 638 201

Injection pump
 Pump designation : PE8PM120A120RS7119
 EP type number : 0 415 628 201
 Governor
 Governor design. : RQ350/1150PA791
 Governor no. : 0 421 801 340

Customer-spec. information
 Customer : PERKINS

Engine : MCY 80

1st version kW : 410.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 6- 5- 4- 8-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 25.7...25.9

100 s: (25.4...26.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 6.00...9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1200

Del.quantity : 257.0...259.0

1000 : (254.0...262.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 1400

Rack travel in mm : 7.5

Testing:

1st rack travel in: 12.60
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:

Speed rpm : 250
Minimum rack travel: 6.40
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 390...430

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 890
Rack travel in m: 12.90...13.00
3rd pressure hPa : 590
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 300 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 259.0...265.0
1000 s: (256.0...268.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 192.0...196.0
1000 s: (190.0...198.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...215.0
1000 s: (192.0...218.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b13
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 083 452CE
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1250AB1225R
 Governor no. : 9 420 080 224

Cust. part no. : 3353985-VERSA024

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CT 8.3 l

1st version kW : 125.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 9.3...9.5

100 s: (9.1...9.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1265

travel mm : 8.50...8.60

2nd speed rpm : 900

travel mm : 5.60...6.00

3rd speed rpm : 500

travel mm : 3.80...4.20

4th speed rpm : 350

travel mm : 1.60...2.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del.quantity : 93.5...95.5
1000 : (91.5...97.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 110...118

Testing:

1st rack travel in: 9.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1295...1325
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 67...75

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.70...10.80
2nd speed rpm : 500
Rack travel in m: 11.40...11.50
3rd speed rpm : 750
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 91.0...93.0
1000 s: (89.0...95.0)
Speed rpm : 750
Del.quantity cm³/ : 96.0...99.0
1000 s: (93.5...101.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 168.0...182.0
1000 s: (165.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b14
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 083 458
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1100AB1218-
 1R
 Governor no. : 9 420 080 302

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CT

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150
 travel mm : 7.00...7.10

2nd speed rpm : 350
 travel mm : 1.40...1.80

3rd speed rpm : 650
 travel mm : 4.30...4.70

4th speed rpm : 1400
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 800
Del.quantity : 117.0...119.0
1000 : (115.0...121.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:

1st rack travel in: 11.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 430...580

TORQUE CONTROL

Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.60...12.70
2nd speed rpm : 700
Rack travel in m: 13.60...13.70
3rd speed rpm : 800
Rack travel in m: 13.30...13.50
4th speed rpm : 950
Rack travel in m: 12.80...13.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 600
Rack travel in m: 13.20...13.30
3rd pressure hPa : 500
Rack travel in m: 12.20...12.40

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 700
Del.quantity cm³/ : 131.5...134.5
1000 s: (129.0...137.0)
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm³/ : 129.0...132.0
1000 s: (126.5...134.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 93.5...95.5
1000 s: (91.5...97.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 168.0...182.0
1000 s: (-)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3354617
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 k
 Edition : 16.01.91
 Replaces : 3.7.90
 Test oil : ISO-4113

Combination no. : 9 400 085 316

Injection pump
 Pump designation : PES6A95D410RS2795
 EP type number : 9 400 084 020
 Governor
 Governor design. : RGV300...1400AB1065-18L
 Governor no. : 9 420 080 278

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 100.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 6.8...7.0
 100 s: (6.6...7.2)

Spread cm³ : 0.3
 100 s: (0.3)

2nd speed rpm : 300.0
 Rack travel in mm : 7.8...8.0
 Del.quantity cm³/ : 0.8...1.4
 100 s: (0.6...1.6)

Spread cm³ : 0.3
 100 s: (0.3)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475
 travel mm : 8.20...8.30
 2nd speed rpm : 300
 travel mm : 1.10...1.60
 3rd speed rpm : 625
 travel mm : 4.00...4.40
 4th speed rpm : 1200
 travel mm : 6.30...6.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1525
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del.quantity : 68.5...70.5
 1000 : (66.5...72.5)

Spread cm³ : 3.50
 1000 : (3.50)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 8.90
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1555...1585
4th rack travel in: 1680
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78

Testing:
Speed rpm : 100
Minimum rack trave: 11.00
Speed rpm : 300
Rack travel in mm : 7.80...8.00

CONSTANT REGULATION
Speed rpm : 375...525

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 50.0...53.0
1000 s: (47.5...55.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...90.0
1000 s: (75.0...93.0)
Rack travel in mm : 14.00...14.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 L
Edition : 16.01.91
Replaces : 24.10.90
Test oil : ISO-4113

Combination no. : 9 400 085 324

Injection pump
Pump designation : PES6A95D410RS2801
EP type number : 9 400 084 023
Governor
Governor design. : RQV350...1300AB1255L
Governor no. : 9 420 080 294

Customer-spec. information
Customer : FNH

Engine : 7.8 L - TC

1st version kW : 158.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
: (3.10...3.30)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.1...1.7

100 s: (0.9...1.8)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.10...1.80

3rd speed rpm : 500

travel mm : 2.70...3.10

4th speed rpm : 700

travel mm : 3.50...3.90

5th speed rpm : 1000

travel mm : 4.90...5.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1390

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300
Aneroid pressure h: 1000
Del.quantity : 100.5...102.5
1000 : (98.0...105.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 111...119

Testing:

1st rack travel in: 12.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1475...1505
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 370...440

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 13.00...13.10
2nd speed rpm : 850
Rack travel in m: 13.40...13.50
4th speed rpm : 1050
Rack travel in m: 13.20...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...12.10

2nd pressure hPa : 410
Rack travel in m: 12.20...12.40
3rd pressure hPa : 610
Rack travel in m: 13.00...13.10

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 850
Del.quantity cm3/ : 101.5...104.5
1000 s: (99.0...107.0)
Speed rpm : 1050
Del.quantity cm3/ : 101.5...104.5
1000 s: (99.0...107.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 75.5...77.5
1000 s: (73.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 155.0...175.0
1000 s: (152.0...178.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 11.0...17.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 m
Edition : 16.01.91
Replaces : 24.10.90
Test oil : ISO-4113

Combination no. : 9 400 085 325

Injection pump
Pump designation : PES6A95D410RS2800
EP type number : 9 400 084 024
Governor
Governor design. : RQV375...1300AB1202-
4L
Governor no. : 9 420 080 295

Customer-spec. information
Customer : FNH

Engine : 7.8 L - NA

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
: (3.10...3.30)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1345

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.30...1.60

3rd speed rpm : 700

travel mm : 4.10...4.50

4th speed rpm : 1100

travel mm : 6.30...6.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1345

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300
Del.quantity : 89.0...91.0
1000 : (87.0...93.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 11.30
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68...76

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 375
Rack travel in mm : 6.70...6.90

CONSTANT REGULATION

Speed rpm : 465...535

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 82.0...85.0
1000 s: (79.5...87.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...129.0
1000 s: (-)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 8.0...14.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 p
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 326
 Injection pump
 Pump designation : PES6A95D410RS2802
 EP type number : 9 400 084 025
 Governor
 Governor design. : RQV350...1300AB1220-5L
 Governor no. : 9 420 080 280

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6.6 L - TC

1st version kW : 139.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.20...13.30

Del. quantity cm³/ : 10.1...10.3

100 s: (9.9...10.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del. quantity cm³/ : 1.5...2.1

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.10...1.80

3rd speed rpm : 500

travel mm : 2.70...3.10

4th speed rpm : 700

travel mm : 3.50...3.90

5th speed rpm : 1000

travel mm : 4.90...5.30

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1

Speed rpm : 1540

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Aneroid pressure h: 900
Del.quantity : 101.5...103.5
1000 : (99.0...106.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 12.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1490...1520
4th rack travel in: 1630
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.40
2nd pressure hPa : 380
Rack travel in m: 11.00...11.30
3rd pressure hPa : 530
Rack travel in m: 12.80...12.90

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm³/ : 99.5...103.5
1000 s: (97.5...105.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 65.5...67.5
1000 s: (63.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...175.0
1000 s: (152.0...178.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 15.0...21.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,9 e
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 328
 Injection pump
 Pump designation : PES4A90D320RS2798
 EP type number : 9 400 084 021
 Governor
 Governor design. : RS350/1400A2B2255R
 Governor no. : 9 420 083 247

Customer-spec. information
 Customer : MWM

Engine : TD 229 EC 4

1st version kW : 90.8
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness : 6.00x2.00x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 9.8...9.9

100 s: (9.6...10.1)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 0.6...1.2

100 s: (0.4...1.4)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h: 800

Del. quantity : 98.5...99.5

1000 : (96.5...101.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 62...70

Testing:
1st rack travel in: 11.80
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1545...1575
4th rack travel in: 1700
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:
Speed rpm : 250
Minimum rack trave: 6.40
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 3.00
Speed rpm : 400...460
Speed rpm : 800
Maximum rack trave: 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 12.80...12.90
2nd speed rpm : 800
Rack travel in m: 12.80...13.00
4th speed rpm : 550
Rack travel in m: 12.80...13.00
5th speed rpm : 400
Rack travel in m: 14.80...15.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 12.80...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.20
2nd pressure hPa : 180
Rack travel in m: 10.80...10.90
3rd pressure hPa : 350
Rack travel in m: 12.10...12.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm3/ : 93.5...96.5
1000 s: (91.0...99.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 45.5...47.5
1000 s: (43.5...49.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 q
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 331
 Injection pump
 Pump designation : PES6A95D410RS2800
 EP type number : 9 400 084 024
 Governor
 Governor design. : RQV375...1400AB1257L
 Governor no. : 9 420 080 299

Customer-spec. information
 Customer : FNH

Engine : 6.6 L - NA

1st version kW : 108.9
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 0.4...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1420

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.30...1.60

3rd speed rpm : 700

travel mm : 4.20...4.60

4th speed rpm : 1100

travel mm : 6.10...6.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 73.0...75.0
1000 : (71.0...77.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 9.40
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 375
Rack travel in mm : 6.30...6.50

CONSTANT REGULATION

Speed rpm : 460...530

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.40...10.50
2nd speed rpm : 500
Rack travel in m: 10.90...11.00
3rd speed rpm : 900
Rack travel in m: 10.90...11.00
4th speed rpm : 1100
Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 57.5...60.5
1000 s: (55.0...63.0)
Speed rpm : 900
Del.quantity cm³/ : 70.5...73.5
1000 s: (68.0...76.0)
Speed rpm : 1100

Del.quantity cm³/ : 72.5...75.5
1000 s: (70.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...129.0
1000 s: (112.0...132.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 4.5...10.5
1000 s: (3.0...12.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 g 1
Edition : 16.01.91
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 085 332

Injection pump
Pump designation : PES6A90D320RS2727
EP type number : 9 400 084 007
Governor
Governor design. : RSV350...1200A2B2097
-3R
Governor no. : 9 420 083 248

Customer-spec. information
Customer : MWM

Engine : D 229 EC 6

1st version kW : 90.8
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
: (2.65...2.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.10...9.20

Del.quantity cm³/ : 5.9...6.0

100 s: (5.7...6.2)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 59.5...60.5

1000 : (57.5...62.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 90...98

Testing:

1st rack travel in: 8.10
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 530...590

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.10...9.20
2nd speed rpm : 500
Rack travel in m: 10.10...10.20
3rd speed rpm : 800
Rack travel in m: 9.70...9.90
4th speed rpm : 1000
Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 55.5...57.5
1000 s: (53.0...60.0)
Speed rpm : 800
Del.quantity cm³/ : 62.0...64.0
1000 s: (59.5...66.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.10
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 8.0...12.0
1000 s: (6.0...14.0)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 i
Edition : 16.01.91
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 085 333
Injection pump
Pump designation : PES4A95D410RS2805
EP type number : 9 400 084 026
Governor
Governor design. : RQV300...1400AB1065-21L
Governor no. : 9 420 080 303

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 66.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 7.0...7.2

100 s: (6.8...7.4)

Spread cm3 : 0.3

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del.quantity cm3/ : 0.5...1.1

100 s: (0.3...1.3)

Spread cm3 : 0.3

100 s: (0.3)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 8.20...8.30

2nd speed rpm : 300

travel mm : 1.10...1.60

3rd speed rpm : 625

travel mm : 4.00...4.40

4th speed rpm : 1200

travel mm : 6.30...6.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1525

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 70.0...72.0

1000 : (68.0...74.0)

Spread cm3 : 3.50

1000 : (3.50)

RATED SPEED

1st version
Control Lever
position degrees: 106...114

Testing:
1st rack travel in: 8.60
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1550...1580
4th rack travel in: 1680
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 69...77

Testing:
Speed rpm : 100
Minimum rack trave: 10.50
Speed rpm : 300
Rack travel in mm : 7.40...7.60

CONSTANT REGULATION
Speed rpm : 375...525

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm3/ : 54.5...57.5
1000 s: (52.0...60.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...90.0
1000 s: (75.0...93.0)
Rack travel in mm : 13.80...14.00

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 q 1
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 085 335

Injection pump
 Pump designation : PES6A95D410RS2800-1
 EP type number : 9 400 084 027
 Governor
 Governor design. : RQV375...1400AB1257-
 1L
 Governor no. : 9 420 080 305

Customer-spec. information
 Customer : FNH

Engine : 6.6 NA

1st version kW : 105.3
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 401 083 315

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 375.0
 Rack travel in mm : 6.3...6.5
 Del.quantity cm3/ : 0.4...1.0
 100 s: (0.3...1.2)

Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1420
 travel mm : 8.50...8.60

2nd speed rpm : 350
 travel mm : 1.30...1.60

3rd speed rpm : 700
 travel mm : 4.20...4.60

4th speed rpm : 1100
 travel mm : 6.10...6.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1400
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400
Del.quantity : 73.0...75.0
1000 : (71.0...77.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 9.40
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 375
Rack travel in mm : 6.30...6.50

CONSTANT REGULATION
Speed rpm : 460...530

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.40...10.50
2nd speed rpm : 500
Rack travel in m: 10.90...11.00
3rd speed rpm : 900
Rack travel in m: 10.90...11.00
4th speed rpm : 1100
Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 57.5...60.5
1000 s: (55.0...63.0)
Speed rpm : 900
Del.quantity cm3/ : 70.5...73.5
1000 s: (68.0...76.0)
Speed rpm : 1100

Del.quantity cm3/ : 72.5...75.5
1000 s: (70.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...129.0
1000 s: (112.0...132.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 4.5...10.5
1000 s: (3.0...12.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,8 o 2
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 318
 Injection pump
 Pump designation : PE6P110A72ORS371-1
 EP type number : 0 411 816 166
 Governor
 Governor design. : RQ300/1050PA419-1
 Governor no. : 9 420 080 194

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 355-A

1st version kW : 210.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 004

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 16.1...16.3

100 s: (15.9...16.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.3

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1130

travel mm : 8.40...8.60

2nd speed rpm : 1000

travel mm : 5.90...6.10

3rd speed rpm : 600

travel mm : 5.90...6.10

4th speed rpm : 300

travel mm : 2.10...2.50

5th speed rpm : 400

travel mm : 3.90...4.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 161.0...163.0

1000 : (159.0...165.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1270
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 152.0...156.0
1000 s: (149.0...159.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (131.0...159.0)

Remarks:

:

APPLICATION

Omnibus

K26

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 7,0 g 2
 Edition : 16.01.91
 Replaces : 2.5.89
 Test oil : ISO-4113
 Combination no. : 9 400 087 401
 Injection pump
 Pump designation : PES4P100A720LS501
 EP type number : 9 400 087 051
 Governor
 Governor design. : RQV350...1100PA798-1
 Governor no. : 9 420 080 222

Customer-spec. information
 Customer : CATERPILLAR

Engine : 3304 DIT

1st version kW : 85.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 401 087 406

Inlet press., bar : 2.00

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 9.8...10.0

100 s: (9.5...10.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.30...1.50

3rd speed rpm : 500

travel mm : 2.90...3.20

4th speed rpm : 700

travel mm : 4.50...4.80

5th speed rpm : 900

travel mm : 6.00...6.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 98.0...100.0
1000 : (95.5...102.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 8.50
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1320
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 370...440

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 98.0...102.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 157.0...177.0
1000 s: (153.0...181.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 i 1
 Edition : 16.01.91
 Replaces : 24.10.90
 Test oil : ISO-4113

Combination no. : 9 400 087 417

Injection pump
 Pump designation : PES6P120A720RS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RQV350...1150PA923K
 Governor no. : 9 420 080 272

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kW : 141.7
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 70...80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.35...2.45
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 15.6...15.8

100 s: (15.3...16.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.50...9.70

2nd speed rpm : 1000

travel mm : 7.80...8.00

3rd speed rpm : 800

travel mm : 6.40...6.80

4th speed rpm : 450

travel mm : 3.80...4.00

5th speed rpm : 350

travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900

Del.quantity : 156.5...158.5

1000 : (153.5...161.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 117...125

Testing:

1st rack travel in: 12.10
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1320...1350
4th rack travel in: 1420
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70

Testing:

Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.10...13.20
2nd speed rpm : 750
Rack travel in m: 12.00...12.20
3rd speed rpm : 550
Rack travel in m: 10.80...11.20

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 200
Rack travel in m: 9.30...9.40
3rd pressure hPa : 440
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 165.0...171.0
1000 s: (162.0...174.0)
Spread cm³ : 8.00
1000 s: (12.)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 116.0...120.0
1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...200.0
1000 s: (156.0...204.0)
Rack travel in mm : 11.60...12.40

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 i 3
 Edition : 16.01.91
 Replaces : 24.10.90
 Test oil : ISO-4113

Combination no. : 9 400 087 418

Injection pump
 Pump designation : PES6P120A72ORS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RQV350...1150PA923-1
 K
 Governor no. : 9 420 080 273

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kW : 179.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 70...80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.35...2.45
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 16.9...17.1

100 s: (16.6...17.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
 travel mm : 9.50...9.70

2nd speed rpm : 1000
 travel mm : 7.80...8.00

3rd speed rpm : 800
 travel mm : 6.40...6.80

4th speed rpm : 450
 travel mm : 3.80...4.00

5th speed rpm : 350
 travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 900
 Del. quantity : 169.0...171.0
 1000 : (166.0...174.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.80
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 61...69

Testing:

Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.80...13.90
2nd speed rpm : 750
Rack travel in m: 12.20...12.40
3rd speed rpm : 550
Rack travel in m: 11.20...11.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 7.90...8.30
2nd pressure hPa : 365
Rack travel in m: 9.40...9.50
3rd pressure hPa : 635
Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm3/ : 172.0...178.0
1000 s: (169.0...181.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 108.5...112.5
1000 s: (106.5...114.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (131.0...179.0)
Rack travel in mm : 10.80...11.60

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm3 : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 i
 Edition : 16.01.91
 Replaces : 24.10.90
 Test oil : ISO-4113

Combination no. : 9 400 087 419

Injection pump
 Pump designation : PES6P120A720RS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RQV350...1150PA923-2.
 K
 Governor no. : 9 420 080 274

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kW : 156.6
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 85...95

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.35...2.45
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.50...9.70

2nd speed rpm : 1000

travel mm : 7.80...8.00

3rd speed rpm : 800

travel mm : 6.40...6.80

4th speed rpm : 450

travel mm : 3.80...4.00

5th speed rpm : 350

travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900

Del. quantity : 158.5...160.5

1000 : (155.5...163.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 118...126

Testing:

1st rack travel in: 12.50
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1315...1345
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 62...70

Testing:

Speed rpm : 275
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.50...13.60
2nd speed rpm : 750
Rack travel in m: 12.80...13.00
3rd speed rpm : 550
Rack travel in m: 11.40...11.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 8.20...8.60
2nd pressure hPa : 300
Rack travel in m: 9.80...9.90
3rd pressure hPa : 500
Rack travel in m: 11.90...12.30

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 174.0...180.0
1000 s: (171.0...183.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 106.5...110.5
1000 s: (104.5...112.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...185.0
1000 s: (141.0...189.0)
Rack travel in mm : 11.20...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 i 2
 Edition : 16.01.91
 Replaces : 24.10.90
 Test oil : ISO-4113
 Combination no. : 9 400 087 420
 Injection pump
 Pump designation : PES6P120A72ORS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RQV350...1150PA923-3
 K
 Governor no. : 9 420 080 275

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kw : 167.8
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 70...80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.35...2.45
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
 travel mm : 9.50...9.70

2nd speed rpm : 1000
 travel mm : 7.80...8.00

3rd speed rpm : 800
 travel mm : 6.40...6.80

4th speed rpm : 450
 travel mm : 3.80...4.00

5th speed rpm : 350
 travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 900
 Del.quantity : 163.5...165.5
 1000 : (160.5...168.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 12.80
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1335...1365
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 390...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.80...13.90
2nd speed rpm : 750
Rack travel in m: 12.30...12.50
3rd speed rpm : 550
Rack travel in m: 11.20...11.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 300
Rack travel in m: 9.90...10.00
3rd pressure hPa : 525
Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 166.0...172.0
1000 s: (163.0...175.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 108.5...112.5
1000 s: (106.5...114.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...190.0
1000 s: (148.0...192.0)
Rack travel in mm : 11.50...12.30

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 n
 Edition : 16.01.91
 Replaces : 24.10.90
 Test oil : ISO-4113

Combination no. : 9 400 087 421

Injection pump
 Pump designation : PES6P100A720RS3235
 EP type number : 9 400 087 067
 Governor
 Governor design. : RQV350...1300PA923-4
 K
 Governor no. : 9 420 080 276

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6.6 Ltr

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 85...95

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.90...15.00

Del. quantity cm³/ : 14.4...14.6

100 s: (14.1...14.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 8.90...9.10

2nd speed rpm : 700

travel mm : 5.50...5.70

3rd speed rpm : 450

travel mm : 3.50...3.80

4th speed rpm : 350

travel mm : 2.20...2.40

5th speed rpm : 275

travel mm : 1.10...1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1200

Del. quantity : 144.0...146.0

1000 : (141.0...149.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 14.00
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1500...1530
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 275
Minimum rack travel: 8.50
Speed rpm : 350
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 14.90...15.00
2nd speed rpm : 850
Rack travel in m: 12.80...13.00
3rd speed rpm : 550
Rack travel in m: 11.50...11.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 14.90...15.00

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 375
Rack travel in m: 10.90...11.00
3rd pressure hPa : 715
Rack travel in m: 13.50...13.90

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 850
Del.quantity cm³/ : 132.0...138.0
1000 s: (129.0...141.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 86.0...90.0
1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (138.0...182.0)
Rack travel in mm : 13.10...13.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 n 1
 Edition : 16.01.91
 Replaces : 24.10.90
 Test oil : ISO-4113

Combination no. : 9 400 087 422

Injection pump
 Pump designation : PES6P100A720RS3235
 EP type number : 9 400 087 067
 Governor
 Governor design. : RQV350...1200PA923-5
 K
 Governor no. : 9 420 080 277

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6.6 Ltr

1st version kW : 138.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 85...95

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 15.10...15.20

Del.quantity cm³/ : 15.2...15.4

100 s: (14.9...15.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
 travel mm : 8.90...9.10

2nd speed rpm : 600
 travel mm : 5.40...5.60

3rd speed rpm : 450
 travel mm : 3.80...4.00

4th speed rpm : 350
 travel mm : 2.20...2.40

5th speed rpm : 275
 travel mm : 1.10...1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1200
 Del.quantity : 152.0...154.0
 1000 : (149.0...157.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 14.10
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 64...72

Testing:

Speed rpm : 275
Minimum rack travel: 8.50
Speed rpm : 350
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 15.10...15.20
2nd speed rpm : 750
Rack travel in m: 13.30...13.50
3rd speed rpm : 550
Rack travel in m: 12.30...12.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 15.10...15.20

Measurement

Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 9.10...9.50
2nd pressure hPa : 280
Rack travel in m: 10.70...10.80
3rd pressure hPa : 665
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 151.0...157.0
1000 s: (148.0...160.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 78.0...82.0
1000 s: (76.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (138.0...182.0)
Rack travel in mm : 13.10...13.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 u
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 449
 Injection pump
 Pump designation : PES6P120A320RS3264
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350...1100PA973
 Governor no. : 9 420 080 293

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA - 8.3 L

1st version kW : 216.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 0.5...1.1

100 s: (0.3...1.3)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 7.00...7.10

2nd speed rpm : 350

travel mm : 1.40...1.80

3rd speed rpm : 650

travel mm : 4.30...4.70

4th speed rpm : 1400

travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del. quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:

1st rack travel in: 10.50
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 425...575

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 480
Rack travel in m: 9.60...9.70
3rd pressure hPa : 800
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700

Del.quantity cm³/ : 200.0...204.0
1000 s: (196.5...207.5)
Spread cm³ : 6.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 116.0...119.0
1000 s: (114.0...121.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 235.0...265.0
1000 s: (231.0...269.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 5.0...11.0
1000 s: (3.0...13.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

:
Start of delivery - engine: 16° before
TDC

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 p
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 451
 Injection pump
 Pump designation : PES6P110A720RS3272
 EP type number : 9 400 087 076
 Governor
 Governor design. : RQV350...1200PA863-10
 Governer no. : 9 420 080 300

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 206.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 9 401 087 403

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.65...4.75
 : (4.60...4.80)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 15.7...15.9

100 s: (15.5...16.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.7...2.1

100 s: (1.5...2.3)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1360

travel mm : 8.40...8.50

2nd speed rpm : 1000

travel mm : 5.50...5.90

3rd speed rpm : 800

travel mm : 4.40...4.80

4th speed rpm : 500

travel mm : 2.60...3.00

5th speed rpm : 300

travel mm : 0.90...1.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1505

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1100
Del.quantity : 157.0...159.0
1000 : (155.0...161.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 96...104

Testing:
1st rack travel in: 11.50
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1375...1405
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 6.30...6.50

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.50...12.60
2nd speed rpm : 700
Rack travel in m: 13.00...13.10
3rd speed rpm : 910
Rack travel in m: 12.90...13.10
4th speed rpm : 1070
Rack travel in m: 12.50...12.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1100
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60

2nd pressure hPa : 800
Rack travel in m: 12.60...12.70
3rd pressure hPa : 500
Rack travel in m: 10.90...11.30

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 700
Del.quantity cm³/ : 135.0...139.0
1000 s: (133.0...141.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 79.0...81.0
1000 s: (76.5...83.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (135.0...165.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.5...23.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 n 2
 Edition : 16.01.91
 Replaces : 24.10.90
 Test oil : ISO-4113

 Combination no. : 9 400 087 452

 Injection pump
 Pump designation : PES6P100A720RS3235
 EP type number : 9 400 087 067
 Governor
 Governor design. : RQV350...1275PA923-6
 K
 Governor no. : 9 420 080 301

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6.6 L

1st version kW : 123.0
 Rated speed : 2550

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 85...95

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1275

Rack travel in mm : 14.80...14.90

Del.quantity cm³/ : 14.3...14.5

100 s: (14.0...14.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 8.90...9.10

2nd speed rpm : 700

travel mm : 5.50...5.70

3rd speed rpm : 450

travel mm : 3.50...3.80

4th speed rpm : 350

travel mm : 2.20...2.40

5th speed rpm : 275

travel mm : 1.10...1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1275

Aneroid pressure h: 1200

Del.quantity : 143.0...145.0

1000 : (140.0...148.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 117...125

Testing:

1st rack travel in: 13.80
Speed rpm : 1335...1345
2nd rack travel in: 4.00
Speed rpm : 1485...1515
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 275
Minimum rack travel: 8.50
Speed rpm : 350
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1275
Rack travel in m: 14.80...14.90
2nd speed rpm : 850
Rack travel in m: 12.80...13.00
3rd speed rpm : 550
Rack travel in m: 11.50...11.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1275
Pressure hPa : 1200
Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 1275

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 375
Rack travel in m: 10.90...11.00
3rd pressure hPa : 715
Rack travel in m: 13.50...13.90

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 850
Del.quantity cm3/ : 132.0...138.0
1000 s: (129.0...141.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 86.0...90.0
1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack travel: 13.80
Speed rpm : 1335...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (138.0...182.0)
Rack travel in mm : 13.10...13.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm3 : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 m
 Edition : 18.12.90
 Replaces : 7.86
 Test oil : ISO-4113

Combination no. : 9 400 230 031

Injection pump
 Pump designation : PES6A95D420LS2461
 Governor
 Governor design. : RSV375...1050A2B2110
 R

Customer-spec. information
 Customer : CASE

Engine : A 504 BDT

1st version kW : 112
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.00

Del. quantity cm³/ : 10.2...10.3

100 s : (9.9...10.6)

Spread cm³ : 0.3

100 s : (-)

2nd speed rpm : 375

Rack travel in mm : 5.80

Del. quantity cm³/ : 1.7...2.3

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 102.0...103.0

1000 : (99.0...106.0)

Spread cm³ : 3.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.00

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1125...1155

4th rack travel in: 1230

Speed rpm : 1.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.30

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 420...480
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.95...11.05
2nd speed rpm : 750
Rack travel in m: 11.00...11.30
3rd speed rpm : 650
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 98.5...104.5
1000 s: (96.5...106.5)
Speed rpm : 650
Del.quantity cm3/ : <104.0
1000 s: (<108.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...141.0
1000 s: (-)
Rack travel in mm : 16.70

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 17.0...23.0
1000 s: (-)

Remarks:

: CASE # A 155899

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a24
 Edition : 17.05.90
 Replaces : 2.5.89
 Test oil : ISO-4113

Combination no. : 9 400 230 089CE

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911959

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3 ltr.

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 11.1...11.3
 100 s: (10.9...11.5)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 111.0...113.0
 1000 : (109.0...115.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 44...52

Testing:

1st rack travel in: 11.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 130.5...134.5
1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a11
 Edition : 24.11.89
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 279
 Injection pump
 Pump designation : PES6A80D320RS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1400A2B2179
 -R
 Governor no. : 9 420 083 165

Customer-spec. information
 Customer : MWM

Engine : D229-6

1st version kW : 100.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insa. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.50...10.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ : 5.8...5.9

100 s: (5.7...6.1)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.1...7.3

Del.quantity cm³/ : 0.9...1.2

100 s: (0.7...1.3)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 58.5...59.5

1000 : (57.0...61.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.00
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1650
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 640...700
Speed rpm : 850
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.00...10.10
2nd speed rpm : 500
Rack travel in m: 10.70...10.80
3rd speed rpm : 800
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 50.5...52.5
1000 s: (48.5...54.5)
Speed rpm : 800
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.30
Del.quantity cm³/ : 9.0...12.0
1000 s: (7.5...13.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 42
 Edition : 01.03.91
 Replaces : 3.3.89
 Test oil : ISO-4113

Combination no. : 0 400 464 135

Injection pump
 Pump designation : PES4A80D410/3RS1300
 EP type number : 0 410 484 015
 Governor
 Governor design. : RSV325...1150A8C657-4L
 Governor no. : 0 420 232 522

Customer-spec. information
 Customer : KHD

Engine : F4L912

1st version kW : 51.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.50...10.60

Del. quantity cm³/ : 5.9...6.0
 100 s: (5.8...6.2)

Spread cm³ : 0.2
 100 s: (0.4)

2nd speed rpm : 325.0
 Rack travel in mm : 7.5...7.7
 Del. quantity cm³/ : 0.9...1.5
 100 s: (0.7...1.6)

Spread cm³ : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del. quantity : 59.5...60.5
 1000 : (58.0...62.0)

Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 102...110

Testing:

1st rack travel in: 9.50
 Speed rpm : 1190...1200
 2nd rack travel in: 4.00
 Speed rpm : 1220...1250
 3rd rack travel in: 4.00

Speed rpm : 1250...1280
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 455...515

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 10.80...10.90
3rd speed rpm : 880
Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 54.0...56.0
1000 s: (52.0...58.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

Remarks:

: FENDT

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 8,7 L1
 Edition : 27.02.91
 Replaces : 25.1.91
 Test oil : ISO-4113
 Combination no. : 0 400 646 278
 Injection pump
 Pump designation : PE6A90D41ORS2124
 EP type number : 0 410 696 141
 Governor
 Governor design. : RQ375/1275AB812-1L
 Governor no. : 0 420 200 115

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 360

1st version kW : 141.0
 Rated speed : 2550

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 8.6...8.7

100 s: (8.4...8.9)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 375.0

Rack travel in mm : 6.2...6.4

Del. quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 86.0...87.0

1000 : (84.0...89.0)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 1275

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.20

Speed rpm : 1315...1325

2nd rack travel in: 4.00

Speed rpm : 1385...1415

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6.3

Testing:

Speed rpm : 275

Minimum rack trave: 8.00

Speed rpm : 375

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

Speed rpm : 445...505

Speed rpm : 550

Maximum rack trave: 1.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/ : 80.0...83.0

1000 s: (78.0...85.0)

Spread cm3 : -

1000 s: (5.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1315...1325

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 m 3
 Edition : 01.03.91
 Replaces : 29.5.90
 Test oil : ISO-4113
 Combination no. : 0 400 676 181
 Injection pump
 Pump designation : PE6A85D320PS2546
 EP type number : 0 410 686 943
 Governor
 Governor design. : RSV250...750A7C2202R
 Governor no. : 0 420 233 202

Customer-spec. information
 Customer : DAF

Engine : DF615

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 6.6...6.7

100 s: (6.4...6.9)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 250.0

Rack travel in mm : 8.4...8.6

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 66.5...67.5

1000 : (64.5...69.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Testing:

1st rack travel in: 11.10

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 8.5
Speed rpm : 250
Rack travel in mm : 8.40...8.60
Rack travel in mm : 2.00
Speed rpm : 295...355

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 8.40...8.60
Del.quantity cm³/ : 9.0...15.0
1000 s: (7.0...17.0)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 n 8
 Edition : 27.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 192
 Injection pump
 Pump designation : PE6A95D410RS2575
 EP type number : 0 410 696 984
 Governor
 Governor design. : RSV250...750A7C2201-
 1L
 Governor no. : 0 420 232 563

Customer-spec. information
 Customer : DAF

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.20...13.30
 Del. quantity cm³/ : 11.0...11.1
 100 s: (10.8...11.3)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 6.0...6.2
 Del. quantity cm³/ : 0.7...1.3
 100 s: (0.5...1.4)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 110.5...111.5
 1000 : (108.5...113.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Testing:

1st rack travel in: 12.20
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 255...315

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.00...6.20
Del. quantity cm³/ : 7.0...13.0
1000 s: (5.5...14.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 b 1
 Edition : 01.03.91
 Replaces : 25.1.91
 Test oil : ISO-4113

Combination no. : 0 400 846 543

Injection pump
 Pump designation : PES6A95D420LS2595
 EP type number : 0 410 896 930
 Governor
 Governor design. : RQ200/1100AB1210R
 Governor no. : 0 420 201 643

Customer-spec. information
 Customer : RABA

Engine : D2156MT6U

1st version kW : 188.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 200.0

Rack travel in mm : 7.3...7.5

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 126.5...128.5

1000 : (124.5...130.5)

Spread cm³ : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 19.9

Testing:

1st rack travel in: 11.60

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1190...1220

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack trave: 7.60

Speed rpm : 200

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00

Speed rpm : 320...360

Speed rpm : 450

Maximum rack trave: 1.00

TORQUE CONTROL

Dimension a mm : 0.55

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.60...12.70

2nd speed rpm : 500

Rack travel in m: 14.20...14.30

3rd speed rpm : 820

Rack travel in m: 13.70...13.90

4th speed rpm : 995

Rack travel in m: 12.90...13.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.10...11.20

2nd pressure hPa : 250

Rack travel in m: 13.10...13.20

3rd pressure hPa : 150

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700

Del.quantity cm3/ : 135.0...138.0

1000 s: (133.0...140.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 82.5...84.5

1000 s: (80.5...86.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 177.0...187.0

1000 s: (174.0...190.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 3,0 f
 Edition : 18.02.91
 Replaces : 21.5.90
 Test oil : ISO-4113
 Combination no. : 0 400 863 016
 Injection pump
 Pump designation : PES3A85D410/3RS2780
 EP type number : 0 410 883 987
 Governor
 Governor design. : RSV325...1250A2C2239
 -1L
 Governor no. : 0 420 232 533

Customer-spec. information
 Customer : KHD

Engine : F3L912 F

1st version kW : 40.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 2

Phasing : 0-120-240
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1235
 Rack travel in mm : 11.40...11.50
 Del.quantity cm³/ : 6.4...6.5
 100 s: (6.2...6.7)
 Spread cm³ : 0.3
 100 s: (0.5)

2nd speed rpm : 325.0
 Rack travel in mm : 8.1...8.3
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.8...1.8)
 Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1235
 Del.quantity : 64.0...65.0
 1000 : (62.0...67.0)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version
 Control Lever
 position degrees: 98...106

Testing:
 1st rack travel in: 10.40
 Speed rpm : 1275...1285
 2nd rack travel in: 4.00

Speed rpm : 1345...1375
3rd rack travel in: 4.00
Speed rpm : 1355...1385
4th rack travel in: 1520
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 435...495

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1235
Rack travel in m: 11.40...11.50
2nd speed rpm : 500
Rack travel in m: 11.60...11.70
3rd speed rpm : 840
Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 55.0...57.0
1000 s: (52.5...59.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1275...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 3
 Edition : 01.03.91
 Replaces : 15.12.89
 Test oil : ISO-4113

Combination no. : 0 400 864 054

Injection pump
 Pump designation : PES4A85D410/3RS2638
 EP type number : 0 410 884 950
 Governor
 Governor design. : RSV325...1150A0C2168
 L
 Governor no. : 0 420 232 364

Customer-spec. information
 Customer : KHD

Engine : BF4L913

1st version kW : 66.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1110

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 8.0...8.1

100 s: (7.8...8.3)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 8.1...8.3

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1110

Del.quantity : 80.0...81.0

1000 : (78.0...83.0)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 101...109

Testing:

1st rack travel in: 11.30

Speed rpm : 1155...1165

2nd rack travel in: 4.00

Speed rpm : 1250...1280

3rd rack travel in: 4.00

Speed rpm : 1320...1350
4th rack travel in: 1430
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 77...85
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 7.60...7.80
Rack travel in mm : 2.00
Speed rpm : 530...580

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1110
Rack travel in m: 12.30...12.40
2nd speed rpm : 500
Rack travel in m: 13.10...13.20
4th speed rpm : 940
Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 79.5...81.5
1000 s: (77.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1155...1165

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)
Rack travel in mm : 16.80...17.20

Remarks:

:

APPLICATION

Tractor (tractor engines)



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 i
Edition : 18.02.91
Replaces : 21.5.90
Test oil : ISO-4113

Combination no. : 0 400 864 075

Injection pump
Pump designation : PES4A85D410/3RS2781
EP type number : 0 410 884 945
Governor
Governor design. : RSV325...1250A2C2239
-1L
Governor no. : 0 420 232 533

Customer-spec. information
Customer : KHD

Engine : F4L912F

1st version kW : 54.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05
: (2.90...3.10)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1235

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 6.4...6.5

100 s: (6.2...6.7)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.1...8.3

Del. quantity cm³/ : 1.0...1.6

100 s: (0.8...1.8)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1235

Del. quantity : 64.0...65.0

1000 : (62.0...67.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 10.40

Speed rpm : 1275...1285

2nd rack travel in: 4.00

Speed rpm : 1345...1375

3rd rack travel in: 4.00

Speed rpm : 1355...1385
4th rack travel in: 1520
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 435...495

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1235
Rack travel in m: 11.40...11.50
2nd speed rpm : 500
Rack travel in m: 11.60...11.70
3rd speed rpm : 840
Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 55.0...57.0
1000 s: (52.5...59.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1275...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 48
 Edition : 27.02.91
 Replaces : 1.2.91
 Test oil : ISO-4113

Combination no. : 0 400 864 083

Injection pump
 Pump designation : PES4A95D410/3RS2789
 EP type number : 0 410 894 995
 Governor
 Governor design. : RSV325...1175A5C2163
 -6L

Governer no. : 0 420 232 548

Customer-spec. information
 Customer : KHD

Engine : F4L913

1st version kW : 55.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 9.3...9.5

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del.quantity : 74.5...76.5

1000 : (72.5...78.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 97...105

Testing:

1st rack travel in: 10.90

Speed rpm : 1215...1225

2nd rack travel in: 4.00

Speed rpm : 1245...1275

3rd rack travel in: 4.00

Speed rpm : 1260...1290
4th rack travel in: 1430
Speed rpm : 0.30...1.40

Tractor (tractor engines)

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 395...455

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 11.90...12.00
2nd speed rpm : 500
Rack travel in m: 12.30...12.40
4th speed rpm : 950
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 58.5...61.5
1000 s: (56.0...64.0)
Speed rpm : 800
Del.quantity cm3/ : 69.0...72.0
1000 s: (66.5...74.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

Remarks:

: DX4.31

APPLICATION

M14

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 4,1 b 5
 Edition : 27.02.91
 Replaces : 7.1.91
 Test oil : ISO-4113

Combination no. : 0 400 864 084

Injection pump
 Pump designation : PES4A90D320/3RS2659
 EP type number : 0 410 894 028
 Governor
 Governor design. : RSV325...1250AOC2182
 -8R

Governer no. : 0 420 233 277

Customer-spec. information
 Customer : MWM

Engine : D226B-4

1st version kw : 74.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...0.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Aneroid pressure h: 900

Del.quantity : 80.5...82.5

1000 : (78.5...84.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 89...97

Testing:

1st rack travel in: 9.70
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1240...1270
3rd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1415
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 455...515

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 10.70...10.80
2nd speed rpm : 500
Rack travel in m: 11.50...11.60
4th speed rpm : 920
Rack travel in m: 11.00...11.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 10.50...10.60
2nd pressure hPa : 215
Rack travel in m: 10.90...11.00
3rd pressure hPa : 180
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 800
Del.quantity cm3/ : 84.5...86.5
1000 s: (82.0...89.0)
Aneroid pressure h: 215
Speed rpm : 500
Del.quantity cm3/ : 68.0...70.0
1000 s: (65.5...72.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 64.0...65.0
1000 s: (62.0...67.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 8.0...12.0
1000 s: (6.0...14.0)
Spread cm3 : 2.50
1000 s: (4.50)

Remarks:

: FENDT

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 o 8
 Edition : 18.02.91
 Replaces : 16.1.91
 Test oil : ISO-4113
 Combination no. : 0 400 864 087
 Injection pump
 Pump designation : PES4A85D410/3RS2799
 EP type number : 0 410 884 944
 Governor
 Governor design. : RSV325...1075A8C2253
 -1L
 Govenor no. : 0 420 232 555

Customer-spec. information
 Customer : KHD

Engine : BF4L913

1st version kw : 65.0
 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1060

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 7.8...7.9

100 s: (7.6...8.1)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.7...7.9

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1060

Aneroid pressure h: 1000

Del.quantity : 78.0...79.0

1000 : (76.0...81.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control Lever

position degrees: 94...102

Testing:

1st rack travel in: 10.30

Speed rpm : 1100...1110

2nd rack travel in: 4.00

Speed rpm : 1130...1160

3rd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1310
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 61...69
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 395...455

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1060
Rack travel in m: 11.30...11.40
2nd speed rpm : 500
Rack travel in m: 11.70...11.80
4th speed rpm : 870
Rack travel in m: 11.40...11.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.90...11.00
2nd pressure hPa : 330
Rack travel in m: 11.50...11.60
3rd pressure hPa : 250
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 76.0...78.0
1000 s: (73.5...80.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 58.5...59.5
1000 s: (56.5...61.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 17.60...18.00

Remarks:

APPLICATION

Wheel loader

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 i 2
 Edition : 01.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 864 090
 Injection pump
 Pump designation : PES4A85D410/3RS2781
 EP type number : 0 410 884 945
 Governor
 Governor design. : RS325/1250A0C2087-1L
 Governor no. : 0 420 220 012

Customer-spec. information
 Customer : KHD

Engine : F4L912F

1st version kW : 54.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1235

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 6.4...6.5

100 s: (6.2...6.7)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.0...1.6

100 s: (0.8...1.8)

Spread cm³ : 0.3

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1235

Del.quantity : 64.0...65.0

1000 : (62.0...67.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Testing:

1st rack travel in: 10.40

Speed rpm : 1275...1285

2nd rack travel in: 4.00

Speed rpm : 1330...1360

4th rack travel in: 1490

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 71...79

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 325

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 1270..1330

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1235

Rack travel in m: 11.30...11.40

2nd speed rpm : 500

Rack travel in m: 11.40...11.60

4th speed rpm : 1000

Rack travel in m: 11.30...11.50

5th speed rpm : 360

Rack travel in m: 13.00...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/ : 55.0...57.0

1000 s: (52.5...59.5)

Speed rpm : 1000

Del.quantity cm3/ : 62.0...64.0

1000 s: (59.5...66.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1275...1285

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 110.0...120.0

1000 s: (107.0...123.0)

Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a63
 Edition : 18.02.91
 Replaces : 17.9.90
 Test oil : ISO-4113

Combination no. : 0 400 866 132

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV500...1250AOC2190
 -28R
 Governor no. : 0 420 233 231

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT-I 8.3ltr.

1st version kW : 139.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 10.2...10.4

100 s: (10.0...10.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.3...1.7

100 s: (1.1...1.9)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 102.5...104.5

1000 : (100.5...106.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.40
Speed rpm : 1315...1325
2nd rack travel in: 4.00
Speed rpm : 1365...1375
3rd rack travel in: 4.00
Speed rpm : 1365...1395
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1315...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C # 3915687

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 r 3
 Edition : 01.03.91
 Replaces : 3.11.89
 Test oil : ISO-4113

Combination no. : 0 400 866 137

Injection pump
 Pump designation : PES6A85D410/3RS2761
 EP type number : 0 410 886 895
 Governor
 Governor design. : RSV325...1400A2C2205
 -1L
 Governor no. : 0 420 232 520

Customer-spec. information
 Customer : KHD

Engine : BF6L913

1st version kW : 118.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 8.7...8.8

100 s: (8.5...9.0)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.5...7.7

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 700

Del.quantity : 87.5...88.5

1000 : (85.5...90.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 97...105

Testing:

1st rack travel in: 11.30

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1345...1375

3rd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1525
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.30...12.40
2nd speed rpm : 750
Rack travel in m: 12.80...12.90
3rd speed rpm : 940
Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.60...11.70
3rd pressure hPa : 700
Rack travel in m: 12.80...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del. quantity cm³/ : 88.5...90.5
1000 s: (86.0...93.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 62.5...63.5
1000 s: (60.5...65.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 110.0...120.0
1000 s: (107.0...123.0)
Rack travel in mm : 17.60...17.40

Remarks:

APPLICATION

Wheel loader

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a66
 Edition : 18.02.91
 Replaces : 28.9.89
 Test oil : ISO-4113

Combination no. : 0 400 866 140

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -33R
 Governor no. : 0 420 233 237

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3ltr

1st version kW : 174.5
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.8...13.0

100 s: (12.6...13.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.4...1.8

100 s: (1.2...2.0)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 128.0...130.0

1000 : (126.0...132.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
3rd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 445...505

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del. quantity cm³/ : 14.5...18.5
1000 s: (12.5...20.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3915967

APPLICATION

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a84
 Edition : 18.02.91
 Replaces : 5.10.90
 Test oil : ISO-4113

Combination no. : 0 400 866 168

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor des~~ignation~~ : RSV400...1100A0C2190
 -52R
 Governor no. : 0 420 233 278

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3ltr

1st version kW : 174.5
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.7...12.9

100 s: (12.5...13.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.7...2.1

100 s: (1.5...2.3)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 127.0...129.0

1000 : (125.0...131.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...175.0
1000 s: (150.0...180.0)
Rack travel in mm : 16.20...16.40

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3917456

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 5,6 a14
Edition : 27.02.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 238M
Injection pump
Pump designation : PES4A95D410RS2685
EP type number : 0 410 894 996
Governor
Governor design. : RSV400...1000A1C2187
L
Governor no. : 0 420 232 387

Customer-spec. information
Customer : LIEBHERR

Engine : D904 TB

1st version kW : 66.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
: (2.65...2.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 9.40
Speed rpm : 1020...1040
2nd rack travel in: 4.00
Speed rpm : 1035...1065
3rd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1220
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 400
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 510...570

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 10.40...10.50
2nd speed rpm : 500
Rack travel in m: 10.90...11.00
4th speed rpm : 825
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 84.5...87.5
1000 s: (82.0...90.0)
Speed rpm : 700
Del.quantity cm3/ : 94.0...97.0
1000 s: (91.5...99.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1020...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 10.0...16.0
1000 s: (7.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 5,6 a13
 Edition : 27.02.91
 Replaces : 24.7.90
 Test oil : ISO-4113

Combination no. : 0 400 874 238P

Injection pump
 Pump designation : PES4A95D410RS2685
 EP type number : 0 410 894 996
 Governor
 Governor design. : RSV400...1000A1C2187
 Governor no. : 0 420 232 387

Customer-spec. information
 Customer : LIEBHERR

Engine : D904 T

1st version kW : 94.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 40...45

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 12.4...12.6
 100 s: (12.2...12.8)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 6.3...6.5
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.8)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del.quantity : 124.0...126.0
 1000 : (122.0...128.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Testing:

1st rack travel in: 12.00
Speed rpm : 1020...1040
2nd rack travel in: 4.00
Speed rpm : 1035...1065
3rd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1220
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 400
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 510...570

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 13.00...13.10
2nd speed rpm : 500
Rack travel in m: 13.40...13.50
4th speed rpm : 825
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 130.5...133.5
1000 s: (128.0...136.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1020...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

NO4

Speed rpm : 400
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 10.0...16.0
1000 s: (7.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 a 4
 Edition : 01.03.91
 Replaces : 5.2.88
 Test oil : ISO-4113

Combination no. : 0 400 876 266

Injection pump
 Pump designation : PES6A95D410RS2108
 EP type number : 0 410 896 983
 Governor
 Governor design. : RSV450...1000A1C2004
 DL
 Governor no. : 0 420 233 219

Customer-spec. information
 Customer : RABA

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.70...1.80
 : (1.65...1.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 10.7...10.9

100 s: (10.5...11.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 6.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 107.5...109.5

1000 : (105.5...111.5)

Spread cm³ : 3.00

1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 106...114

Testing:

1st rack travel in: 10.10
 Speed rpm : 1040...1050

2nd rack travel in: 4.00
 Speed rpm : 1085...1115

4th rack travel in: 1250
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 80...88
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 450
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 530...590

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.10...11.20
2nd speed rpm : 800
Rack travel in m: 12.60...12.70
3rd speed rpm : 500
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 124.5...129.0
1000 s: (122.5...131.0)
Speed rpm : 500
Del.quantity cm³/ : 125.5...129.5
1000 s: (123.5...131.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 11.0...17.0
1000 s: (8.5...19.5)
Spread cm³ : 3.00
1000 s: (5.00)

Remarks:

:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 v 11
 Edition : 27.02.91
 Replaces : 12.9.86
 Test oil : ISO-4113

Combination no. : 0 400 876 293

Injection pump
 Pump designation : PES6A90D410RS2596
 EP type number : 0 410 896 073
 Governor
 Governor design. : RSV350...1400A0C1141
 L
 Governor no. : 0 420 232 423

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM352A

1st version kW : 123.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 7.4...7.5
 100 s : (7.2...7.7)

Spread cm³ : 0.3
 100 s : (0.4)

2nd speed rpm : 350.0
 Rack travel in mm : 7.8...8.4
 Del. quantity cm³/ : 1.0...1.2
 100 s : (0.8...1.4)

Spread cm³ : 0.2
 100 s : (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Aneroid pressure h: 700
 Del. quantity : 74.0...75.0
 1000 : (72.0...77.0)

Spread cm³ : 3.00
 1000 : (4.50)

RATED SPEED

1st version
 Control lever
 position degrees: 110...118

Testing:
 1st rack travel in: 10.90
 Speed rpm : 1435...1440
 2nd rack travel in: 4.00
 Speed rpm : 1475...1488

3rd rack travel in: 4.00
Speed rpm : 1520...1550
4th rack travel in: 1680
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: -3
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 16.00
Speed rpm : 350
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 11.90...12.00
2nd speed rpm : 900
Rack travel in m: 13.00...13.10
3rd speed rpm : 1050
Rack travel in m: 12.70...12.90
4th speed rpm : 1260
Rack travel in m: 11.90...12.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.30...11.40
2nd pressure hPa : 500
Rack travel in m: 12.60...12.70
3rd pressure hPa : 340
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm3/ : 75.0...78.0
1000 s: (72.5...80.5)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 50.0...51.0
1000 s: (48.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1435...1440

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 16.10...16.50

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.80...8.40
Del.quantity cm3/ : 10.0...12.0
1000 s: (8.0...14.0)
Spread cm3 : 2.50
1000 s: (4.50)

Remarks:

Hydraulic latching of starting
delivery.

Latching at 0.45 bar...0.55 bar.

Unlatching at 0.25 bar...0.35 bar.

APPLICATION

Unimog

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 1
Edition : 18.02.91
Replaces : 17.9.90
Test oil : ISO-4113

Combination no. : 0 400 876 350

Injection pump
Pump designation : PES6A100D410RS2754
EP type number : 0 410 806 002
Governor
Governor design. : RSV425...1100A2C2234

Governer no. : 0 420 232 498

Customer-spec. information
Customer : JOHN DEERE

Engine : 6076TRW04

1st version kW : 122.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 100.5...102.5

1000 : (98.5...104.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 125.0...128.0
1000 s: (122.5...130.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE29182
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 2
 Edition : 18.02.91
 Replaces : 17.9.90
 Test oil : ISO-4113
 Combination no. : 0 400 876 351
 Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100AZC2234
 -1L
 Governor no. : 0 420 232 499

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 TRWD1

1st version kW : 106.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 110.5...113.5
1000 s: (108.0...116.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE29303
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

1st rack travel in: 8.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 103.0...106.0
1000 s: (100.5...108.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE36069
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 6,6 b 1
Edition : 18.02.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 386
Injection pump
Pump designation : PES6A95D320RS2806
EP type number : 0 410 896 898
Governor
Governor design. : RSV500...1100AOC2178
-9R
Governor no. : 0 420 233 282

Customer-spec. information
Customer : VALMET

Engine : 620DS

1st version kW : 124.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 2.1...2.9

100 s: (1.8...3.1)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 95.0...97.0

1000 : (93.0...99.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 81...89

Testing:

1st rack travel in: 10.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1170...1200
3rd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1345
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 500
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.00...11.10
2nd speed rpm : 500
Rack travel in m: 12.00...12.10
4th speed rpm : 790
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 91.0...94.0
1000 s: (88.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...200.0
1000 s: (187.0...203.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 21.0...29.0
1000 s: (18.5...31.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 j 3
 Edition : 18.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 388
 Injection pump
 Pump designation : PES6A95D410RS2797
 EP type number : 0 410 896 900
 Governor
 Governor design. : RSV350...1200A1C1154
 -2L
 Governor no. : 0 420 232 561

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kw : 81.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.80...9.90

Del.quantity cm³/ : 5.4...5.6

100 s: (5.2...5.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 9.4...10.0

Del.quantity cm³/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 54.5...56.5

1000 : (52.5...58.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 110...118

Testing:

1st rack travel in: 8.80

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1263...1280

3rd rack travel in: 4.00

Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.40
5th rack travel in: 1245...1255
Speed rpm : 8.80

LOW IDLE 1

Control Lever
position degrees: -3
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 9.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 9.40...10.00
Rack travel in mm : 2.00
Speed rpm : 495...555

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.80...9.90
2nd speed rpm : 500
Rack travel in m: 11.10...11.30
3rd speed rpm : 850
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8.80
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 92.0...102.0
1000 s: (89.0...105.0)
Rack travel in mm : 16.10...16.50

Remarks:

:

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 j 2
Edition : 27.02.91
Replaces : 1.2.91
Test oil : ISO-4113

Combination no. : 0 400 876 389

Injection pump
Pump designation : PES6A95D410RS2797
EP type number : 0 410 896 900
Governor
Governor design. : RSV350...1200A1C1163
-2L
Governor no. : 0 420 232 562

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 366

1st version kw : 75.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.00...9.10

Del. quantity cm³/ : 4.8...5.0

100 s: (4.6...5.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 9.4...10.0

Del. quantity cm³/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 48.5...50.5

1000 : (46.5...52.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 108...116

Testing:

1st rack travel in: 8.00

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1263...1280

3rd rack travel in: 4.00

Speed rpm : 1315...1345
4th rack travel in: 1450
Speed rpm : 0.30...1.40
5th rack travel in: 1270...1280
Speed rpm : 8.00

APPLICATION

Unimog

LOW IDLE 1

Control Lever
position degrees: -3
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 9.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 9.40...10.00
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.00...9.10
2nd speed rpm : 500
Rack travel in m: 10.00...10.20
3rd speed rpm : 875
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 35.0...38.0
1000 s: (32.5...40.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 15.40...15.80

Remarks:

:

Adjust shutoff device to 0.5...1.5 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 o 9
 Edition : 27.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 390
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RSV250...750A7C2206-
 3R
 Governor no. : 0 420 233 283

Customer-spec. information
 Customer : DAF

Engine : DNDT 620

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 12.70...12.80

 Del.quantity cm³/ : 8.7...8.8
 100 s: (8.5...9.0)

 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.4...1.3)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 87.5...88.5
 1000 : (85.5...90.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 91...99

Testing:

1st rack travel in: 11.70
Speed rpm : 745...750
2nd rack travel in: 4.00
Speed rpm : 775...790
4th rack travel in: 935
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 69...87
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 300...360

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 745...750

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : BAO 14,9 b
 Edition : 18.02.91
 Replaces : 5.3.90
 Test oil : ISO-4113

Combination no. : 0 401 840 768

Injection pump
 Pump designation : PE12P110A520RS3241
 EP type number : 0 411 810 713
 Governor
 Governor design. : RQV325...1500PA931
 Governor no. : 0 421 813 805

Customer-spec. information
 Customer : BAUDOUIN

Engine : 12 F 11 SRE,GE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 12- 9- 5- 3- 8-
 : 11- 4- 2- 10- 7- 6

Phasing : 0-45-60-105-120-165-
 180-225-240-285-300-
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 12.4...12.7

100 s: (12.1...12.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 1.3...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.00...1.40

2nd speed rpm : 1000
 travel mm : 3.20...3.60

3rd speed rpm : 1500
 travel mm : 8.10...8.30

4th speed rpm : 1800
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1700

Rack travel in mm : 5.00...8.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Aneroid pressure h: 900

Del.quantity : 124.0...127.0

1000 : (121.5...129.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 10.00
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1630...1660
4th rack travel in: 1750
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 83...91

Testing:
Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 325
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 300...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.00...11.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.60
2nd pressure hPa : 400
Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min : 275 (295)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 73.0...77.0
1000 s: (70.5...79.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1540...1550

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.90...7.10
Del. quantity cm³/ : 13.0...18.0
1000 s: (10.5...20.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 e2
 Edition : 19.02.91
 Replaces : 16.01.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 552
 Injection pump
 Pump designation : PE6P100A820LS503
 EP type number : 0 411 806 197
 Governor
 Governor design. : RQ250/1000PA352-1
 Governor no. : 0 421 801 412

Customer-spec. information
 Customer : ENASA

Engine : 95 T1 AZ

1st version kW : 155.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.85...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 15.5...15.7

100 s: (15.3...15.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 16.00...17.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 900

Del.quantity : 155.0...157.0

1000 : (153.0...159.0)

Spread cm³ : 4.50

1000 : (7.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.6

Testing:

1st rack travel in: 12.70

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 13.70...13.80
2nd speed rpm : 700
Rack travel in m: 14.40...14.80
3rd speed rpm : 825
Rack travel in m: 13.90...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 12.90...13.30
2nd pressure hPa : 400
Rack travel in m: 14.10...14.20
3rd pressure hPa : 300
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 159.0...163.0
1000 s: (157.0...165.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 o
 Edition : 18.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 568
 Injection pump
 Pump designation : PE6P110A320RS529
 EP type number : 0 411 816 179
 Governor
 Governor design. : RQ275/1000PA818-3
 Governor no. : 0 421 801 534

Customer spec. information

Customer : DAF
 Engine : LT 195 G

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 14.50...15.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50...4.70
 & maximum rack tra: 13.6...14.6
 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 14.60...14.70
 Del.quantity cm³/ : 19.3...19.5
 100 s: (19.0...19.7)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ : 2.2...2.7
 100 s: (1.9...2.9)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1000
 Del.quantity : 193.0...195.0
 1000 : (190.5...197.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 15.8
 Testing:
 1st rack travel in: 13.10
 Speed rpm : 1030...1045
 2nd rack travel in: 4.00

Speed rpm : 1100...1130
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack travel: 8.10
Speed rpm : 300
Rack travel in mm : 6.60...7.00
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.45
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 14.00...14.20
2nd speed rpm : 600
Rack travel in m: 14.60...14.80
3rd speed rpm : 750
Rack travel in m: 14.50...14.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.60...14.70

Measurement

Speed 1/min : 600
1st pressure hPa : 440
Rack travel in m: 14.00...14.10
2nd pressure hPa : 340
Rack travel in m: 12.70...12.90
3rd pressure hPa : -
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 980
Del.quantity cm³/ : 179.0...181.0
1000 s: (175.0...185.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.5...136.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1030...1045

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...280.0
1000 s: (236.0...284.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 22.0...27.0
1000 s: (19.5...29.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.